

AMATEUR RADIO

OCTOBER, 1957

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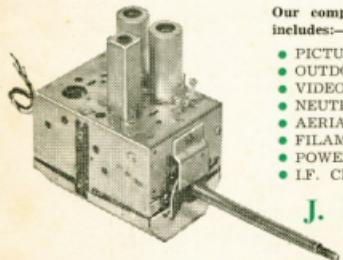
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| 2442.5 Ke. | 5655.333 | Ke. | 6300 | Ke. | 6900 | Ke. | 7225 | Ke. |
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| 2760 Ke. | 5725 | Ke. | 6375 | Ke. | 6975 | Ke. | 7300 | Ke. |
| 2979 Ke. | 5744 | Ke. | 6400 | Ke. | 7000 | Ke. | 7325 | Ke. |
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| 3537 Ke. | 5875 | Ke. | 6522.9 | Ke. | 7012 | Ke. | 7475 | Ke. |
| 3892 Ke. | 5900 | Ke. | 6525 | Ke. | 7018 | Ke. | 7500 | Ke. |
| 3925 Ke. | 5925 | Ke. | 6547.5 | Ke. | 7021.7 | Ke. | 7525 | Ke. |
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| 4172 Ke. | 5975 | Ke. | 6561.111 | Ke. | 7032 | Ke. | 7575 | Ke. |
| 4205 Ke. | 6000 | Ke. | 6575 | Ke. | 7032.5 | Ke. | 7600 | Ke. |
| 4285 Ke. | 6050 | Ke. | 6600 | Ke. | 7050 | Ke. | 7625 | Ke. |
| 4445 Ke. | 6075 | Ke. | 6625 | Ke. | 7075 | Ke. | 7650 | Ke. |
| 4600 Ke. | 6083.3 | Ke. | 6675 | Ke. | 7100 | Ke. | 7675 | Ke. |
| 4815 Ke. | 6100 | Ke. | 6700 | Ke. | 7145 | Ke. | 7725 | Ke. |
| 4930 Ke. | 6125 | Ke. | 6725 | Ke. | 7150 | Ke. | 7750 | Ke. |
| 5000 Ke. | 6150 | Ke. | 6750 | Ke. | 7155 | Ke. | 7775 | Ke. |

AMATEUR RADIO

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EDITORIAL



50 Mc. BAND AND THE I.G.Y.

The world wide study during the I.G.Y. has intensified interest in the 50-60 Mc. region.

Throughout South America are scattered a number of high power transmitting and receiving stations dedicated to the task of studying forward scatter and other propagation phenomena at these frequencies.

Australian Amateurs will be particularly interested to learn that facts and figures so far disclosed support the evidence collected by members of the W.I.A. and submitted by your Executive to the A.B.C.B. and Amateur Administration during discussions relative to transfer of Amateurs to make room for TV Channels. The problem of long distance interference at these frequencies was particularly stressed.

It is fitting now that an opportunity has come for Amateurs to take

part in this aspect of I.G.Y. study on at least portion of the old 50-54 Mc. band where international activity is greatest.

The continuation of the studies in conjunction with special facilities available during I.G.Y. could lead to great advancement in our knowledge of propagation at v.h.f.

Another event in which Australian Amateurs have cause to be jubilant at this moment is the success of our approach to the Philippines Government, through the Australian Minister of External Affairs, to permit communication between the Amateurs of our two countries.

It is this freedom of exchange which has always characterised the spirit of Amateur Radio and overcome all obstacles with one object in mind. International Good, Year in and year out.

FEDERAL EXECUTIVE.

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90° R.F. Phase Shift Networks

PART THREE

NETWORK IMPEDANCE

Let us look at the subject of network impedance. We wish to obtain as much voltage output from the network as possible, for a given power input.

The higher the network impedance the more output volts we obtain for any given input level, but we must compromise between output voltage and network impedance. Admittedly the operating power level of the network directly affects the output voltage obtainable, but the aspect of power level was dealt with earlier in detail.

Study the chart of component values with Fig. 1. Note how, as the frequency of operation is raised and the network impedance is kept constant, the values of the capacities required in the network drop. A 300 ohm network at 3.5 Mc. requires condensers of 147 pF, at 14.2 Mc. this has been reduced to 35 pF, and at 28.4 Mc. would be halved to 17.5 pF.

The inductance required also has decreased from 13.33 μ H. at 3.6 Mc. to 3.37 μ H. at 14.2 Mc., and would be 1.68 μ H. at 28.4 Mc.

The stray capacity of circuit wiring plus the input capacity of balanced modulators, especially multi-element tube types, associated with the r.f. p.s.n. could easily equal, and in some cases exceed, the figure of 17.5 pF, quoted above.

In regard to two branch networks of Fig. 1 such a stray capacity would fall across the inductive element of one branch and add to the capacitive element of the other branch, hopelessly throwing the phase shift well away from 90°. In an extreme case the inductance could even be resonated by the stray capacity, with likewise disastrous results to the phase shift.

So we must limit the network impedance to some value where the effect of stray circuit reactances cause no trouble at the operating frequency, or frequencies.

The pi network of Fig. 5 avoids the stray capacity trouble to a large degree, as this capacity, as previously explained, falls across the input and output capacitives of the network and can be then counted as part of them. Consequently for any given value of network impedance, a pi network can be operated satisfactorily at a higher frequency than a two branch type of network.

An attempt should be made to estimate the stray circuit inductance and capacity, especially the latter, when one is deciding what r.f. p.s.n. to use in any particular piece of equipment. The effect of such strays upon the operation of any contemplated network, should then be considered at the highest operating frequency at which s.s. energy is to be generated. If the network will perform well at that frequency, the effect of the circuit strays at lower frequencies can be ignored.

It is possible in some cases to balance out an unwanted capacitive reactance by inserting an inductive re-

actance of the same magnitude into the circuit at a suitable point, and vice versa in respect of undesired inductive reactance.

However, this method of approach to the stray reactance problem is not to be recommended, as the resulting circuit can quite easily assume the proportions of a monster that no one can tame, due to so many introduced variables. Also, balancing out reactance as described is only good for one frequency, further complicating matters.

Whilst on the subject of stray reactances, keep the two network output leads well separated.

Stray capacity will be the main problem as circuit inductance can be kept to a minimum by the use of heavy gauge wire and short leads. This should be done in any case, as floppy loose wiring may cause the phase shift to be unstable.

The circuits shown in Figs. 1, 3, 5, 7 and 8 should always be wired into the circuit so that no d.c. from the balanced modulators flows through them. If this condition is not observed the operating conditions of the balanced modulators will not be similar, also they will be coupled together by a d.c. circuit through the network, which produces undesirable results.

BY N. L. SOUTHWELL,* VK2ZF

impedance source if inefficient operation can be tolerated in the driver stage.

It is appreciated that when dealing with components operating at the Amateur band frequencies the average Amateur will not know the exact value of his components. Should resistors used be plus or minus some percentage of the rated value, it will not matter greatly in the case of the two branch networks as the adjustment procedure provides for adjusting the associated series reactances to a value equal to that of the resistor wired with them. With all the types of networks, values of components specified are "centre design values" as calculated, and if the actual components used (with the exception of terminating resistors, which are critical) are within a reasonable percentage of this figure, the networks will be found to "phase up" without trouble.

USING THE REACTANCE CHART

The chart in Fig. 9 will enable the derivation of the approximate value of components for networks at various frequencies having impedances other than those given in the chart in Fig. 1.

The chart plots the inductive and capacitive reactance for components

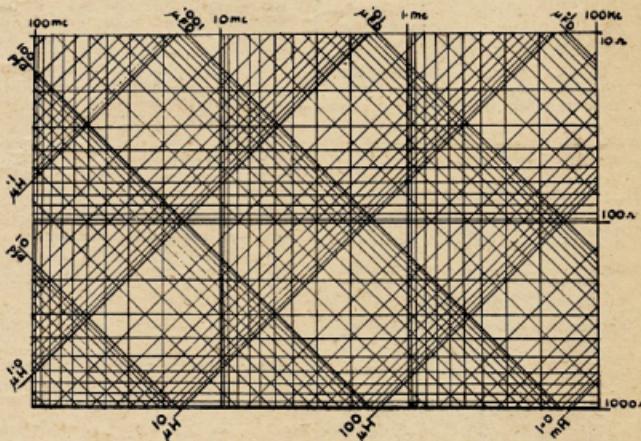


Fig. 9.—Inductive and Capacitive Reactance v. Frequency and Resistance.

The circuits shown in Figs. 2, 4, and 6 can be operated directly in the d.c. return path for the balanced modulators as in these networks the d.c. return paths for each output is completely separate, and of equal r.f. impedance and d.c. resistance.

Circuits of networks in Figs. 1, 2, 3, 5, 6, 7, and 8 should, as a general rule, be fed from a source having a low r.f. impedance and preferably low d.c. resistance, although it is possible to feed the above circuits from a high

between the frequency limits of 100 Kc. and 100 Mc., and resistance limits of 10 ohms and 1,000 ohms.

To use the chart enter it along the vertical line for the frequency of network operation, proceed down until it intersects the horizontal line which gives the value of network impedance required. From the junction of these two lines the values of the required inductance and capacity can be read off, by inspection and interpolation, on the inductance value lines which slope

upward from left to right and the capacity value lines which slope upward from right to left.

ADJUSTMENT

The adjustment of r.f. phase shift networks involves dealing with the line up procedure of the equipment in which they are used, and will be covered here in a general form.

In dealing with s.s.b. transmitter exciters, it will be assumed that the audio p.s.n. has been previously adjusted to approximately the correct conditions and that the carrier balance controls have been set for minimum carrier leakage.

An audio frequency oscillator having a good waveform output is required. This oscillator should be set to approximately 1250 cycles per second and the output waveform inspected on a c.r.o. If the result is not a good sinewave, the oscillator should be overhauled until it is, as it will be useless to proceed otherwise.

The output of the exciter should be suitably loaded and the c.r.o. also coupled to the output so that the r.f. appears on the vertical plates. The oscilloscope sweep circuit is set to about 250 cycles per second and is applied to the horizontal plates.

With all equipment operating and lined up to resonance, the audio oscillator is connected to the exciter audio input and the gain control on the exciter advanced; care should be taken not to overload any circuit by either injecting too much signal from the oscillator or by turning the exciter gain up too high.

Viewing the c.r.o. pattern you will probably observe something like Fig. 10. The job in hand is to minimise the ragged nipples on the edge of the pattern until it looks like Fig. 12.



Fig. 10.—Carrier not fully suppressed, also some unwanted sideband present.

A number of things can cause roughening of the edge of the pattern. They are:

- (1) Audio phase shift not perfect,
- (2) R.f. phase shift not perfect,
- (3) Carrier leakage through the exciter to its output,
- (4) Distortion in the output of the audio oscillator,
- (5) Distortion in the audio sections of the exciter,
- (6) Distortion in the r.f. section of the exciter after the balanced modulators.

We will assume we have a minimum of trouble from (1) and (6) above. In regard to (3), a small amount of carrier usually gets through; this has to be borne in mind, and when you are endeavouring to obtain the best performance possible from the equipment, the presence of traces of residual carrier must be remembered. The presence of residual carrier is easy to pick as it produces ripples on the pattern at half the frequency as those produced by the sideband energy.

Adjustment of the carrier balance controls, extra shielding of the various

stages, or an altered layout are the ways in which this carrier can be minimised.

To minimise the unwanted sideband the r.f. p.s.n. controls and the audio amplitude balance controls are the ones to be adjusted.

In respect of distortion in the audio oscillator's output listed as (4) above, causing a roughening of the edges of the c.r.o. pattern, a very "sticky" situation arises, should the oscillator have much third harmonic distortion in its output.

This third harmonic distortion energy falls at a frequency which is twice the audio oscillator output frequency away from the unwanted sideband. Unfortunately the undesired sideband is separated from the wanted sideband by the same amount but in the opposite direction—frequency wise.



Fig. 11.—Carrier suppressed, still some unwanted sideband.

The c.r.o. will show both unwanted sideband and third harmonic of the audio oscillator up as identical signals, and it will be impossible to tell them apart as they will appear as one signal.

Under the above conditions it is more than likely that you will try and introduce, quite unwittingly, a sufficient amount of undesired sideband energy to cancel out the third harmonic of the audio oscillator. The remedy is to make sure the audio oscillator has a good sine wave output.

The reason for keeping the level of the tone fed into the exciter at a level where no overloading of any stage in the circuit can take place will also be appreciated.

Figures 10, 11 and 12 show representative c.r.o. patterns of different conditions you will encounter when lining up an exciter.

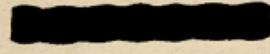


Fig. 12.—Both carrier and unwanted sideband suppressed.

Fig. 13. gives a table of the suppression values for various amounts of ripple in the c.r.o. pattern due solely to unwanted sideband.

The line-up method just described using a c.r.o. has its limitations, as can be seen by inspection of the table in Fig. 13. The best suppression that can be measured on a c.r.o. is between 30 and 40 db.

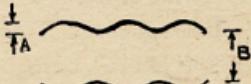
Another way of checking the output is by means of a receiver that has a single sideband adaptor connected to it. Both methods can be used together, or either alone. For routine line-ups after the initial adjustments have been ascertained, the writer prefers to use the receiver, as with practice it is quicker, more convenient, and accurate. In fact if you transmit much residual carrier the use of a receiver may be the most accurate means for you to use.

The receiver is set up with its input shorted and r.f. gain turned well

back, so that with no modulation you can tune in the signal radiated as residual carrier around S4 or 5, zero beat this signal exactly. Switch the adaptor to receive the unwanted sideband, apply tone input to the exciter as described previously and adjust the exciter controls until a minimum signal emanates from the speaker. Do the adjustments at a fairly low room volume, generally the lower the better, as the ear is more sensitive to changes in level at low volume. When you are satisfied throw the adaptor sideband selector switch to the opposite sideband and observe the difference in strength.

Now throw the sideband selector switch on the exciter so that the opposite sideband is radiated. Check the relative strengths of the two sidebands on the receiver. The ratio of suppression should be about the same as before.

It is quite possible when you throw the exciter s.b. selector switch that you may find the suppression not as good as that for the sideband you have lined it up on. In this case a small adjustment of the exciter r.f. p.s.n. controls and the audio balance controls are called for possibly you will only need to adjust the r.f. p.s.n. to regain your original sideband suppression.



| Ratio | Sideband Suppression |
|-------|----------------------|
| 1:5 | 14 db. |
| 1:10 | 20 db. |
| 1:15 | 24 db. |
| 1:20 | 26 db. |
| 1:30 | 30 db. |
| 1:40 | 32 db. |
| 1:50 | 34 db. |
| 1:70 | 37 db. |
| 1:100 | 40 db. |

Fig. 13.—Deriving sideband suppression from c.r.o. patterns.

Inspect the controls to see how much you have had to move them and set them half way between the two settings required for the different sidebands.

The checking of both sidebands radiated by the exciter is a necessity as under some conditions it is possible on one sideband to obtain good suppression from a single tone when the r.f. and a.f. phase shifts are not 90°. Switching sidebands proves whether your adjustments are satisfactory or not.

Under conditions of good adjustment it should be possible to barely hear the unwanted sideband on the speaker when the signal from the wanted sideband is set to give fair room level.

ADJUSTMENT OF RECEIVING TYPE S.S.B. ADAPTOPTS

The adjustment of r.f. p.s.n.'s in receiving type s.s.b. adaptors will also be given in brief outline as details will vary a little with individual equipment.

(Continued on Page 8)

ZEPHYR MICROPHONES

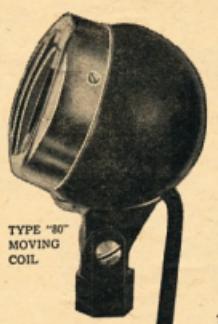


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AVAILABLE FROM ALL LEADING TRADE HOUSES

E.H.T. Without Tears

BY M. RILEY,* A.S.T.C., VK2ARZ

IN spite of the fact that small modulation monitors have been described in "A.R." and other magazines with some regularity over a period of nearly thirty years, a few hours listening on our phone bands will reveal that the simple c.r.o. is still not being used to the extent it should.

The cold hard facts are that although plate meters seem to be used extensively to monitor, in a rough fashion, the degree of modulation applied to the majority of transmitters, this indication of average modulation does not tell us very much about what is happening to the carrier under peak modulation conditions.

Failure to recognise this fact leads to reports of overmodulation and splatter. The only satisfactory way to overcome these difficulties lies in the construction and use of a simple c.r.o. One Sydney operator will not consider phone operation without his c.r.o. even when the rig involved is only a mod. osc. (fortunately now relegated to its correct place). He claims that he felt "completely lost" when the c.r.o. was out of action for a short time.

The writer has attempted to analyse the reasons which have prevented the simple c.r.o. from assuming a place in the Ham shack similar to that occupied by the multimeter and g.d.o. in previous years c.r.t.s. were expensive items. Recently, however, numerous types have appeared at prices ranging from 10 to 40 shillings. If the life of one of these is considered in terms of your operating time, it can be seen that two c.r.t.s. at the most will outlast the average Ham and that the price of two tubes spread over say 30 years removes the consideration of c.r.t. cost.

The average Ham should experience little difficulty in wiring up the four potentiometers and half dozen resistors necessary to build a small c.r.o.

Assuming the use of a "negative e.h.t." supply all the voltages required for the operation of such a unit, with the exception of the e.h.t. supply, may be obtained from the transmitter itself.

It appears likely that what we really need is some form of "black box" which we can install in our equipment. This "black box" must place very little load on the power supply operating it and must produce sufficient e.h.t. to operate any c.r.t. likely to be found in the average junk box.

If you have been waiting for such a "black box" read on.

If you are still trying to find an excuse for the lack of a simple c.r.o. type modulation monitor in your shack, stop here and turn to the YL corner.

The unit to be described places a very small load on any one of the transformers used to power your rig.

If you wish to build the c.r.o. into the modulator (its logical position) then use the speech amp. supply for a small c.r.t. or the modulator supply for a large tube.

* 6 Barings Road, Mortdale Heights, N.S.W.

The output voltage (V_o) developed by the "black box" is a function of the transformer voltage. Typical figures are as follows:

| | |
|---------------------|-----------------|
| Transformer | Loaded E.H.T. |
| Voltage | Voltage |
| 220v. r.m.s. a side | -ve 900 v.d.c. |
| 350v. r.m.s. a side | -ve 1500 v.d.c. |

No special filament windings are needed to operate the "black box" supply.

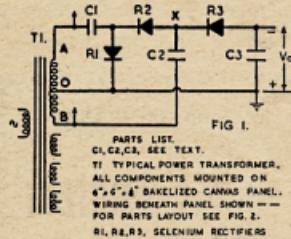
The "magic" is supplied by the use of special selenium rectifiers.

At this stage you may be prepared to throw up your hands in desperation! If so, turn to the DX pages.

USE OF SELENIUM RECTIFIERS

Perhaps you have had some unfortunate experience with selenium rectifiers. Most failures of that nature are caused through ignorance of the factors involved in the operation of these rectifiers so that the manufacturers' ratings have been exceeded.

Once a few simple principles have been established in your thoughts, you will find yourself in a position to judge the suitability of any type you may have on hand for a particular



job. Before describing the "black box" a few words on selenium rectifiers in general will not be out of place.

Basically, they have two important ratings: maximum rated forward current and maximum inverse voltage.

The first rating determines the load current which the rectifier will deliver and is determined by the area of active conducting material on each plate and the spacing between plates in a rectifier stack. A typical rating is 50 to 60 Ma/sq. cm. of active material. To determine the rating of a metal rectifier plate, measure the outside and inside diameter of the conducting material on the plate (assuming circular plates with "centre contact" mounting), calculate the area in sq. cm. and multiply by 50 to obtain the current rating in millamps.

If the stack is used in "push-pull" or bridge connections, the rating calculated will be correct. If half-wave rectification is used, this figure must be halved to give the correct rating.

The rating of maximum inverse voltage is the maximum voltage which

should appear across each plate in the non-conducting or "reverse" direction. This rating determines the voltage which may be applied to the stack. A value of 14 to 18 volts r.m.s. is normal for rectifier plates manufactured in Australia. In the U.S.A. a figure of 65v. maximum peak inverse voltage is quoted for some domestic receiver applications. This explains those miniature rectifiers so often seen in "QST" performing an apparently impossible task.

If a rectifier is feeding into a capacitor filter a maximum input voltage of 9v. r.m.s. per plate may be used in a half-wave circuit, 9v. r.m.s. per plate a side in "push-pull", or 18v. r.m.s. per plate in "bridge" rectification.

A selenium rectifier is also very sensitive to breakdown induced by excessive temperature rise. The best we can do here is to see that the other ratings are not exceeded and that the rectifier is well ventilated.

The manufacturers recommend that the normal maximum working temperature should not exceed 65°C. (149°F.) although a value of 85°C. (185°F.) can be withstood with safety for some hours¹.

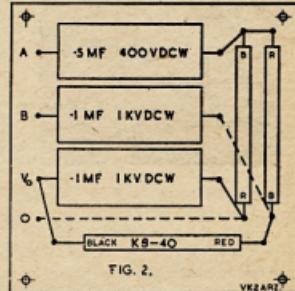
CONSTRUCTION OF E.H.T. SUPPLY

To proceed with the construction of the "black box" e.h.t. supply you will need:

- Three selenium rectifiers type K8-40. These are rated at 960v. r.m.s. inverse and 5 Ma. maximum forward current. They are obtainable ex stock from the Sydney manufacturers (S.T.C., Botany Road, Alexandria, Sydney, price 10/8 plus tax).
- One paper capacitor 0.5 μ F. or greater. 400v. or more d.c.v.w. (C1).
- Two high voltage capacitors 0.1 μ F. or greater, voltage rating 1kv. or greater (C2 and C3).

All components are mounted on a piece of bakelized canvas in the unit constructed by the writer. The actual

(Continued on Page 6)



(1) "The Manufacture, Construction and Application of S.T.C. Selenium Rectifiers" by R. F. Haren, A.S.T.C.

RADIO—31 YEARS AGO

BY ERIC TREBILCOCK, BERS195

[31 years ago Eric Trebilcock, BERS195, first made his entry into the field of Amateur Radio interest. He recently re-read some radio magazines which were in existence at that time and from same extracted some information which will be of interest to present-day Hams and S.w.l.'s—31 years is a long time ago, probably before half of our VK Hams were born!!—Ed.]

This information refers to the 1926-1927 era. In those years:

There were approx. 400 licensed Amateur Stations in VK, and 100 in ZL.

Of those licensed in 1926, 96 still hold the same call sign in VK.

Only two call signs were listed under Papua-New Guinea (VK4CP and VK-4CR).

There were 21 broadcast stations—eight "A" class and 13 "B" class.

A 200-page radio magazine cost 1/- in those days!

There were 180,000 broadcast listeners' licenses in existence in VK—of which total 90,000 were in VK3 and 50,000 in VK2.

A broadcast listeners' licence cost varied between 17/6 and 27/6. A dealers' licence cost £2 to £5, and a licence for a receiver in a hotel cost £7/10/0 to £10.

A crystal set was retailed at £4.

A 2-tube b.c. receiver cost £15, 4-tube £28, 6 tubes £45 to £120; and

* 340 Gillies St., Thornbury, N.17, Vic.

a portable job cost £75 believe it or not!

In those days 500 watts was referred to as low power!

A train toured N.S.W. carrying a fully equipped b.c. station, the aerial for which was 60 ft. long and mounted on two masts 40 ft. high above the carriage roofs!

There were 23 Australian based warships, all of which had call signs commencing with G.

The main DX band for Amateurs was 32 metres, and the prefix was A (later OA—then VK still later).

S.w.l.'s and b.c. listeners alike used to derive great pleasure from week-end music and speech transmissions by Amateur Stations around 200 metres.

At night time it was common place for Interstate reception to take place regularly—on this "Amateur" band.

Several of the big DX men 30 years ago are still to be heard chasing DX—on the other hand, some of our present-day chief experiments were in the front ranks of experimenters 30 years ago.

QSL cards were no less popular then than they are now. (Most b.c. stations used to seek DX reports too, for which QSL cards were offered.)

"Cage" type aerials were all the rage with Amateurs and b.c. stations—beams were virtually unknown.

In the intervening 31 years, BERS195 has made 182,000 log entries, mailed 15,000 reports, and received 9,000 QSL cards.

E.H.T. WITHOUT TEARS

(Continued from Page 8)

physical construction does not matter, but the method suggested has proven simple, rugged and reliable. Pigtailed on each component are soldered to lugs held in the insulating material by tubular rivets (see Fig. 2).

THEORY OF OPERATION

To understand the operation of the circuit (Fig. 1) assume that point A becomes positive with respect to points O and B.

Rectifier R1 will conduct and C1 will charge to the peak value of the voltage AO. (C1 must be rated to withstand this voltage of $1.4 \times AO$ r.m.s. voltage. For a 220 volt a.c. transformer, C1 should be rated to $220 \times 1.4 = 310V$ d.c.w.)

On the next half-cycle R2 will conduct and due to the charge on C1, C2 will be charged to a potential of $3 \times 1.4 \times AO$ volts peak.

The potential of point B will vary from $1.4 \times AO$ positive to $1.4 \times AO$ negative with respect to the point O. The polarity of R3 is such that although point X will tend to vary from $4 \times 1.4 \times AO$ to $2 \times 1.4 \times AO$ volts, C3 will be maintained at $4 \times 1.4 \times AO$ volts.

In the case of a 220 volt a.c. transformer this means that C3 will be charged to nearly 1,100 volts unloaded. When the e.h.t. bleed is added, together with the c.r.t. load, this potential will drop to about 900V.

The theory of operation is included so that intending constructors can check the rating of any components which may be pressed into service. Before you attempt to use any capacitor in the "black box" see that its rating will cover the voltages likely to be experienced. If possible give them a "leakage" test on a neon-type indicator or check them with a megger.

Having provided yourself with a compact, simple and reliable source of e.h.t. for your modulation monitor, any standard Amateur manual will provide you with the circuitry of a simple c.r.o. The one described in "The Radio Handbook", eleventh edition, is the one used by the Sydney Amateur mentioned. The c.r.t. will require a filament winding isolated from all other tubes in the equipment. One of the normal windings on the power transformer can be used and although the insulation is probably not designed to withstand several hundred volts to frame, equipment constructed this way is known to be operating satisfactorily. If you have any strong feelings on the subject it is not difficult to wind up a one-to-one transformer (having adequate insulation to withstand the voltage used), energised from a filament winding on T1.

If the c.r.t. has a four volt or two point five volt filament this procedure is recommended.

And now that is the story of the "black box". The writer wishes good reports and more effective modulation to anyone prepared to try this not well known approach to e.h.t. generation.

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THE 1957 EDITION CONTAINS—

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- Over one thousand additions, alterations and deletions since the last edition, making more than three thousand amendments since the 1954 edition.
- DX Countries, Prefixes and their Zones.

Antenna Couplers for 50 and 144 Mc.*

SHIELDED COUPLERS FOR THE V.H.F. STATION

THOUGH antenna couplers are quite general on lower frequencies, they are still something of a rarity in v.h.f. stations. Why bother with a combination of coils and capacitors, when a simple balun of co-axial line will serve the same purpose?

There's nothing wrong with the balun approach, provided we recognise its limitations. The balun will convert from co-ax to balanced lines, and step up the impedance from 50 to 200, or 75 to 300 ohms, in the process, but it will do no more. Transmission line of 200 ohms impedance is little used, and the common polyethylene-insulated 300 ohm lines leave quite a bit to be desired, particularly in wet weather. Probably the best transmission line for most v.h.f. installations is the open-wire variety, with impedance ranging from 400 to 600 ohms. A balun will not do the job properly with this sort of line.

In addition, few v.h.f. antenna systems actually present a purely-resistive load of 300 ohms at the transmitter end. Measurement of impedance, at the end of the line or at the antenna, may show values well away from those that can be matched with simple co-axial baluns. A moderate mismatch between the antenna and the transmission line

• Unless only a short transmission line is needed for the run from transmitter to array, losses may run rather high if co-ax is used on v.h.f. antenna systems. Yet modern transmitter design and the need for t.v.l. protection demand the use of co-axial output coupling. The best combination for most v.h.f. installations is some form of balanced transmission line for the main run, and an antenna coupler to handle the conversion from the balanced line to the co-axial transmitter connection. Here are shielded couplers to do the job on 50 and 144 Mc. (Slight modifications will be necessary for 56 Mc. band operation in Australia.—Ed.)

something less than a red-hot v.h.f. antenna, but the couplers made it possible to load properly, and the antenna didn't do too badly. With another coupler of similar circuitry,¹ the same doublet also served well enough for our occasional excursions on all the "d.c. bands" from 30 to 3.5 Mc.

CONSTRUCTION

Antenna couplers for lower bands are usually constructed with their tuned circuits out in the open. Shielding is desirable, but the large coils needed for those frequencies would require quite large enclosures. Metal in the field of a coil reduces its "Q" so we should allow for free space all around the coil for at least half the diameter. On 50 or 144 Mc. we can satisfy this requirement and still build the antenna coupler in a compact package.

Our couplers are housed in aluminium utility boxes 3 x 4 x 6 inches in size. These are the two-piece variety, and all the components are mounted on one of the pieces. With only slight modification a standard chassis could be used, the shielding being completed by adding a bottom cover.

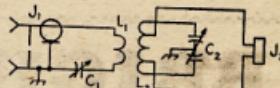
The two units are identical in external appearance, and similar components are used. The main tuning capacitor, C2, is fastened to the front wall $\frac{1}{4}$ inches from the left side. The series capacitor, C1, and the co-axial fitting, J1, are $\frac{1}{8}$ inches up from the bottom of the rear wall, $\frac{1}{2}$ and 2 $\frac{1}{2}$ inches, respectively, from the left edge, as viewed from the back. A standard crystal socket, J2, is the terminal for the balanced line. It is mounted on the top, one inch from the edge.

Details of the interior arrangement should be obvious from the photographs. The 50 Mc. coils are cut from commercially available stock inductors, though they can, of course, be made by

hand. The coupling winding, L1, is inserted inside the tuned circuit. The polyethylene strips on which the coils are wound keep the two coils from shorting to each other, so no mechanical support other than that provided by the leads is needed. The leads to L1 are brought out between the turns of L2, and are insulated from them by two sleeves of spaghetti, one inside the other. Do not use the soft vinyl type of sleeving, as it will melt too readily if, through an accident to the antenna system, either coil should run warm.

In the 144 Mc. unit the positions of the coils are reversed, with the tuned circuit, L2, at the centre, and the coupling coil on the outside.

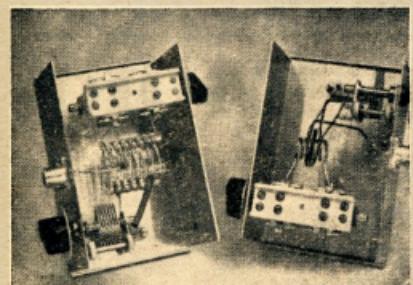
The components are designed to stand up under fairly high power. Smaller parts could be used if operation is to be at the 100 watt level or lower, but there would be no great saving in cost. Similar tuning capacitors are used in both couplers, but some of the plates are removed from the one in the 144 Mc. unit. This provides easier tuning, though it has no great effect on the minimum capacitance, and is therefore merely a matter of convenience. The capacitor may be left in its original condition, if you want to save it that way for some other eventual use.



ADJUSTMENT

There is only one way to adjust an antenna coupler properly. That is by means of some form of standing-wave bridge. Anything else is guess-work. You can come up with an adjustment that will work, but you will never know if it is the optimum, except by checking the standing-wave ratio on the co-axial line from the transmitter to the coupler.

If you have a power-indicating bridge it will be necessary to drop the power level to that recommended for the bridge in question. Adjustment of the coupler is the same for either, however, and once it is set correctly it may then be used for that antenna sys-



will do very little harm, provided that some provision is made for tuning the line, and for coupling to it properly. That's where our antenna couplers come in. With them you can make almost any antenna system that is fed with a balanced line take power on 50 and 144 Mc.—and that can be highly useful in an emergency.

The writer recently made use of the two antenna couplers described below in this way. Some changes in our arrays for 50 and 144 Mc. had been started, and then were held up by a stretch of the nasty weather that New England can serve up in March. For a week or so we got in some tolerable operating on 6 and 2 metres by using a 68-foot doublet that is fed with about 100 feet of open-wire line. It was

* Reprinted from "QST," July, 1956.

¹ See the Transmission Lines chapter of any recent edition of the "Handbook" for details.

tem at any power level, and with any length of co-ax, and any transmitter.

Set the bridge to read forward power, and with the antenna connected to J2 adjust the antenna coupler capacitors and the transmitter tuning roughly for maximum reading. Now set the bridge to read reflected power, and adjust the antenna coupler capacitors, first one and then the other, until minimum reflected power is achieved. Unless the line input impedance is very highly reactive it should be possible to get the reflected power reading down to zero, or very close to it. As far as the antenna coupler is concerned, the job is now complete, for the antenna presently in use. Adjustment from here on, for maximum transfer of power from the transmitter, is done entirely at the transmitter. If you can't get the transmitter to load properly now, you need some modification of its coupling system. If the bridge shows zero reflected power, the co-ax link now represents a purely resistive load for the transmitter. Leave it that way, and go to work on the rig!

The couplers were checked in the lab, with resistive loads from 100 to 1600 ohms, over which range it was possible to show a 1:1 s.w.r. in the co-ax line and load the transmitters effectively. This simulates a mismatch of up to 5.3 to 1 for 300 ohm lines, or 4.5 to 1 for 450 ohm lines. It is unlikely that a v.h.f. array built to any standard design will have an s.w.r. of anything like this order. Antennae intended for use on the other bands may present higher or lower values, but a

slight juggling of the line length should make it possible to load them effectively with the couplers shown.

— E. P. T.

PHASE SHIFT NETWORKS

(Continued from Page 3)

With the main receiver set on manual volume control and with the r.f. gain turned well back, tune in an a.m. phone signal. Listening to the signal when tuned to zero beat it should be clear and undistorted at the output of the adaptor.

Detune the receiver to one side of the station until a heterodyne of 1,000-1,500 c.p.s. is obtained with the received carrier. Operate the adaptor's sideband selector switch and observe which position gives the weakest received signal and leave it in that position.

Adjust the r.f. p.s.n. and the audio balance control for that particular sideband until the received signal is at a minimum. The receiver should now be detuned to the opposite side of the a.m. carrier, to obtain approximately the

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

same beat note, and the adaptor's sideband selector switch is thrown to the other sideband position.

The audio balance control for that sideband and the r.f. p.s.n. controls are adjusted until the received signal in the speaker is again at a minimum.

Switch alternately between the two sideband positions on the adaptor, tuning the receiver to the opposite side of the received signal each time. After two or three adjustments to each sideband position the job will be complete.

As in the case of the s.s.b. exciter, it may be necessary to strike a mean position for the final settings of the r.f. p.s.n. controls.

Now you will find as you tune across the band that the carriers of a.m. stations can only be heterodyned on one side of zero beat, likewise c.w. signals. Tune in two a.m. stations QRMing each other and observe how selecting the appropriate sideband either eliminates the QRM or renders it of no nuisance value. In the case where a station is hard to read on either sideband try reading it on a normal a.m. receiver and you will appreciate what a properly lined up adaptor is capable of doing.

This article has covered r.f. p.s.n.'s from almost all angles, practical and theoretical, the types covered are thoroughly representative of those in use by the s.s.b. fraternity. Other phase shift networks may be encountered occasionally, as other circuits do exist, but this article should meet the requirements of almost all the readers interested in these circuits.

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THOSE EQUALISING PULSES

Maybe you have built your own t.v. receiver, or maybe you've only a theoretical and academic interest in its circuitry, but, whichever way your interest lies, no doubt you've wondered about those pulses! Let us lift you out of the confusion caused by other published explanations of this facet of t.v. by referring you to a series entitled "Television Made Easy," published in "Amateur Radio" under the names of Ken Wall and John Jarman, in particular Part VI, February, 1952, from which we quote:

"Now these equalising pulses; what are they for? Well, we've learnt that each picture is scanned in two 'fields', each of 312½ lines. The first field is terminated in the middle of a line, and the second at the end of a line."

"Now, supposing that normal horizontal sync. pulses were used right up to commencement of vertical sync. pulses. Consider the interval between the last horizontal and the first vertical pulses. At the end of the first field, it would be shorter than at the end of the second field. The small charge left on the integrator, by this last pulse, has therefore less time to escape so that at the end of the first field, charge on integrator reaches its peak faster."

"In every picture, therefore, the first field would be 'cut short', so that interlacing would not be correct. The lines of the second field would tend to 'overlap' those of the first, instead of falling between them."

"To prevent this, we substitute some of the horizontal sync. pulses, both before and after each set of vertical sync. pulses, with narrow pulses, at twice line frequency, to equalise conditions for each type of field."

Amazing, isn't it, that such a lucid explanation has lain dormant for five and a half years?

VALVE DATA

6SN7GTA

MEDIUM-MU TWIN TRIODE

Base: Octal.

Socket connections:

- Pin 1—Grid of Unit No. 2.
- Pin 2—Plate of Unit No. 2.
- Pin 3—Cathode of Unit No. 2.
- Pin 4—Grid of Unit No. 1.
- Pin 5—Plate of Unit No. 1.
- Pin 6—Cathode of Unit No. 1.
- Pin 7—Heater.
- Pin 8—Heater.

Electrical Data

- Heater voltage 6.3 volts
- Heater current 0.6 amp.

CLASS A1 AMPLIFIER

Values are for each unit.

Maximum Ratings:

- Plate voltage 450 max. volts
- Cathode current 20 max. Ma.
- Plate dissipation:
 - For either plate 5 max. watts
 - For both plates with both units operating 7.5 max. watts
 - Peak heater - cathode voltage:
 - Heater negative with respect to cathode 200 max. volts
 - Heater positive with respect to cathode 200* max. volts
 - * The d.c. component must not exceed 100 volts.

Characteristics:

| | | |
|--|------|-------|
| Plate voltage | 250 | volts |
| Grid voltage | 8 | volts |
| Amplification factor | 20 | |
| Plate resistance | 7700 | ohms |
| Transconductance | 2600 | μhos |
| Plate current | 9 | Ma. |
| Plate current for grid voltage of -12.5 volts | 1.3 | Ma. |
| Grid bias voltage (approx.) for plate current of 10 μA | -18 | volts |

Maximum Circuit Value:

Grid-circuit resistance:

For fixed-bias operation

1.0 max. megohm

E.Y.M.A.—EIGHT-HUNDRED YEARS MUNICH AWARD AND CONTEST

On the occasion of the Munich 800-Year Anniversary Festival, the Munich section of the D.A.R.C. arranged a competition from 1st October, 1957, to 31st December, 1957, to promote a close contact with all Amateurs of the world.

CONTEST RULES

As many contacts as possible should be established with Munich stations.

Most of the operation may be telephone or c.w., or both. Minimum report for phone contacts must be Q3/S3 for c.w. contacts RST33B.

Each contact with a single Munich station is counted as one point per band. The sum of points thus gained is multiplied by the number of bands used during the contest, i.e. the highest multiplier is 4. Radio stations outside of Europe may count 10 points per contact established on the 3.5 Mc. band.

Munich stations may be recognised during the contest by means of the identifier "C 12", i.e. internal German zone C 12-area of Munich; which will be added to the call sign. External German stations with call sign prefixes DL2, DL4, DL8 and DJ0 are not recognised as German stations for the purpose of this contest.

The Amateur with the highest scores from each continent will be awarded expenses for a 3-day stay in Munich on the occasion of the Munich 800 Year Anniversary Festival in July, 1958. During the 3-day stay the winner will be awarded with his medal and his certificate. Second and third place winners from each continent and first place winner from each country, according to the official DX C.C. countries list, will also receive a certificate.

Immediately after the end of the contest each participant will receive a special QSL card. This QSL card will be a reproduction of the original certificate with an indication of officially checked scores. In addition, all Amateurs in zones 29, 30, and 31 will receive a certificate for establishing a certain number of contacts with Munich stations. For a certificate Amateurs in zones 29, 30, and Amateurs in zones 13 and

39, if located in the Antarctic, must contact 15 different Munich stations. Participants in the contest will automatically receive the certificate if they make contacts with the stations.

QSL cards for Munich Amateurs must be addressed as follows: O.V. München, Post Office Box 4, Munich 40, Germany. Only QSL cards showing all necessary data will be counted.

Contest contacts will be acknowledged only if the contestant submits his cards according to the rules given above. The deadline mailing date (official post mark date) for QSL cards for this contest and the certificate is 31st January, 1958, and cards arriving after 31st March, 1958, cannot be acknowledged.

D.X.C.C. LISTING

Listed below are the highest twelve members in each section. Non-members and those whose totals have been amended will also be shown.

PHONE

| Call | Cer. Cnt- | Call | Cer. Cnt- | | |
|--------|-----------|------|-----------|----|-----|
| VK4FJ | 21 | 202 | VK4WD | 1 | 152 |
| VK5ATH | 20 | 188 | VK4KS | 9 | 152 |
| VK4HR | 12 | 122 | VK5LN | 4 | 150 |
| VK5RU | 2 | 188 | VK4RW | 23 | 147 |
| VK5BZ | 3 | 176 | VK3LN | 11 | 141 |
| VK3EJ | 10 | 163 | VK3JE | 7 | 140 |

New Members

| | | | | | |
|-------|----|-----|--------|----|-----|
| VK3TE | 37 | 115 | VK7LZ | 36 | 101 |
| VK5HW | 38 | 111 | VK3ACN | 39 | 101 |

C.W.

| Call | Cer. Cnt- | Call | Cer. Cnt- | | |
|-------|-----------|------|-----------|----|-----|
| VK4FJ | 29 | 234 | VK5CX | 26 | 210 |
| VK3FB | 15 | 226 | VK5BY | 45 | 193 |
| VK3KB | 10 | 225 | VK2E0 | 3 | 183 |
| VK1KZ | 6 | 215 | VK2YL | 36 | 178 |
| VK4HR | 8 | 210 | VK2E8 | 9 | 175 |
| VK3XU | 48 | 213 | VK5RU | 18 | 172 |

Amendments

| | | |
|-------|----|-----|
| VK5XX | 41 | 140 |
| VK3RP | 56 | 120 |

New Members

| | | | | | |
|-------|----|-----|-------|----|-----|
| VK3RP | 56 | 120 | VK1CH | 55 | 105 |
| VK3ZA | 57 | 101 | | | |

OPEN

| Call | Cer. Cnt- | Call | Cer. Cnt- | | |
|--------|-----------|------|-----------|----|-----|
| VK2ACX | 6 | 238 | VK3JE | 12 | 210 |
| VK4FJ | 28 | 228 | VK3WIG | 16 | 195 |
| VK4HR | 7 | 233 | VK2NS | 16 | 195 |
| VK3BZ | 4 | 231 | VK4EL | 2 | 183 |
| VK3XU | 61 | 221 | VK4GW | 13 | 171 |
| VK5RU | 8 | 218 | VK2DI | 3 | 170 |

Amendments

| | | | | | |
|-------|----|-----|-------|----|-----|
| VK9XX | 54 | 142 | VK7LZ | 23 | 141 |
| VK3Y5 | 57 | 121 | | | |

New Members

| | | | | | |
|-------|----|-----|-------|----|-----|
| VK4BG | 66 | 112 | VK3ZA | 65 | 103 |
| VK1EG | 67 | 101 | | | |

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1957 "CQ" WORLD-WIDE DX CONTEST RULES

I.—CONTEST PERIOD:

Phone Section—0200 GMT October 26 to 0200 GMT, October 28.

CW Section—0200 GMT, November 30 to 0200 GMT, December 2.

II.—BANDS:

The Contest activity will be in the 18, 3.5, 7, 14, 21, 27 and 28 Mc. Amateur bands.

III.—TYPE OF COMPETITION:

1. Phone Section—(a) Single operator, (b) Multi-operator.

2. CW Section—(a) Single Operator, (b) Multi-operator, (c) Novice operator.

3. Inter-club.

IV.—EQUIPMENT:

There is no limit to the number of transmitters and receivers allowed, and competitors may use the maximum power permitted under the terms of their licenses.

V.—SERIAL NUMBERS:

Phone stations will exchange serial numbers consisting of four numerals, the first two being the readability and strength report, and the last two being their own ZONE number. Phone stations in Zone 1 through 9 will prefix their Zone number with zero (01, etc.). CW stations will exchange serial numbers consisting of five numbers, the first three being the RST report, and the last two being their own ZONE number. Stations in Zone 1 through 9 will prefix their Zone number with zero (01, etc.).

VI.—POINTS:

Contacts between stations on different continents will count three points.

Contacts between stations on the same continent, but not in the same country, will count one point.

Contacts between stations in the same country for the purpose of obtaining a Zone and/or country multiplier, will be permitted but no QSO points will be allowed.

More than one contact between stations on each band will not be permitted.

VII.—MULTIPLIERS:

Two types of multipliers will be used:

1. A multiplier of 1 for each Zone contacted on each band.

2. A multiplier of 1 for each Country worked on each band.

VIII.—AWARDS:

Certificates will be awarded in each section as follows:

1. To the highest scoring station on each single band in the following areas:

(a) Each call area of the U.S.A.

(b) Each call area of Australia and Canada.

(c) All other countries.

2. To the stations having the highest combined total of all bands (or more than one band) in the following areas:

- (a) Each call area of the U.S.A.
- (b) Each call area of Australia and Canada.
- (c) All other countries.

IX.—SPECIAL AWARDS:

1. A cup will be awarded to the highest scoring Single Operator, All Band, Phone Station in the world.

2. A cup will be awarded to the highest scoring Single Operator, All Band, CW Station in the world.

3. A plaque will be awarded to the affiliated DX Club submitting the highest aggregate score of the scores submitted by its members.

(a) For a Club to enter, an officer of the Club must submit a list of its members participating and their scores.

(b) This list may include scores of Single Opr. and Multi-Opr. Stations, both Phone and CW.

(c) Stations that are members of a competing Club must therefore indicate this fact on their report forms.

4. At the request of the donors, last year's winners are not eligible for the 1957 Phone and CW cup award. In other words the cups cannot be won more than once by the same station. This, however, does not hold true for the plaque award.

5. Also such special or additional awards as the DX Committee shall choose to make. In countries or sections where the returns justify second and even third place, certificates may be awarded.

X.—SCORING:

The score for each Single Band is the sum of the Zone and Country multiplier for that band, multiplied by the total contact points on that band.

2. The total All Band score is the sum of the Zone and Country multipliers of all bands, multiplied by the contact points on all bands.

3. Everyone who sends in a log for a single band is eligible for a Single Band award only. If more than one single band log is submitted, indicate which band is to be judged.

4. Those who submit logs for two or more bands will be judged for the All Band award.

5. No station is eligible for more than one award.

6. Contestants must show a minimum of eight hours of operating time to be eligible for an award. If a contestant operates All Band and wishes to be judged for a specific Single Band, he must show a minimum of eight hours on that band.

XI.—ZONES AND CONTINENTS:

To check your own Zone number and continent for scoring purposes, refer to the A.R.R.L. or "CQ" list as well as the W.A.Z. map. For continental boundaries the same as used for W.A.C. will be recognised. Should any question arise as to the positive location of any station, the official definition will be final.

XII.—OPERATING SUGGESTIONS:

1. Foreign Amateurs: remember, scores are based on the greatest number of Countries and Zones as well as

stations worked. Therefore do not concentrate on working only U.S. stations. This is a world-wide competition.

2. Foreign Amateurs; it is recommended that you give the call letters of the station you are working at the end of each transmission, instead of "BK" as this would prevent much QRM of stations piling on and calling you.

3. Overseas phone operators should indicate which end of the band they are tuning or which portion of the phone band (American or foreign) they intend to cover. This is extremely important on 21 and 28 Mc.

4. CW stations would greatly reduce QRM and speed up contacts by working stations OFF their own frequency. Likewise, U.S. stations should avoid calling "that rare one" on his own frequency.

XIII.—RULE CHANGES:

No changes from last year. See modification in Rule IX. Nos. 4 and 5 re awards. Also note definition of 8-hour minimum in Rule X. No. 6.

XIV.—LOG INSTRUCTIONS:

1. In keeping log, fill in Zone number and Country only first time it is contacted on each band.

2. Use a separate sheet for each band.

3. Keep all times in GMT.

4. All contestants are expected to compute their scores. Logs should be checked for contact duplications and proper point credit before they are submitted.

5. Make sure name and address is clearly noted on each log.

6. Each contestant must sign the usual pledge. Note sample contest report form.

7. If official log forms are not available, it is hoped that the contestant will make a duplicate form as illustrated. The size is 8 1/2" x 11" with 52 contacts to the page.

8. Copies of the Zone and Country list and log and report forms are available from "CQ", address listed below. Send a self-addressed, stamped envelope, or in the case of overseas stations, I.R.C. coupons. Make sure to include sufficient postage and state how many sheets are needed.

XV.—DEADLINE:

All logs must be postmarked no later than December 1, 1957, for the Phone Section and January 15, 1958, for the CW Section. Send all logs direct to: "CQ" Magazine, 300 West 43rd St., New York 36, N.Y. Attn: Contest Committee.

50 Mc. W.A.S.

| Call | Car. No. | Call | Car. No. |
|-------|----------|--------|----------|
| VK2WJ | 13 4 | VK1AEZ | 10 1 |
| VK3PG | 5 3 | VK3XJA | 11 1 |
| VK2IV | 9 3 | VK3GGM | 12 1 |
| VK3VZ | 22 2 | VK3XAL | 14 1 |
| VK4HR | 4 2 | VK3ED | 15 1 |
| VK3LC | 1 1 | VK2HO | 8 1 |
| VK2KJ | 3 1 | VK2ABC | 9 1 |
| VK3JR | 6 1 | VK2WH | 15 1 |
| VK3HT | 7 1 | | |

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S.W.L. SECTION*

NEW SOUTH WALES

Barry Cartwright, from Richmond, N.S.W., just missed the boat by one day last month with his letter. These notes have to be with the Magazine Committee by the 10th. Bill Dore stated that he hasn't yet built a 2 mx converter, but has plans for building a GAZU beam in the near future, evidently with the idea of really going hard after the DX. He is at present in the process of constructing a three-tube converter which should be in working condition very soon. Barry finds that 15 mx is the best DX band for him but is also very prone to QRM from ignition and power lines.

He guarantees that Richmond is the noisiest town in Australia and says that a Ham friend in his street will bear his statement out. Well, I don't know. Barry, I live on a main road with power lines, cars and trucks and have an h.t. power line two feet above me. I'd say the country boys are on top there.

Our next letter comes from Don Holbrook, of Holbrook, N.S.W. Don, like Dave Jenkins, is keen on battery operated t.r.f. receivers. He has a 1000 m.w. Pifco 1000 with a R1062 (AR14) 500 battery operated t.r.f. which he says has proved itself. As proof he quotes the following logged on 20 m.s. in the past few weeks. VV4, VK6, OH, DL, KLT, EA, VS, KEP, etc. The antenna is a 100 ft. mast which is about 20 ft. of wire from chimney to gable. The set originally cost Don 45/- so he evidently has a bargain. Don, who was a telegraphist in the R.A.A.F., intends to sit for his ticket in January under the urgings of George 2ADZ. Hope you get through OK Don.

VICTORIA

At the Aug. meeting 22 members were present and we were pleased to welcome two new comers in Charles Sanderson of East St. Kilda and J. H. Hunt of East Croydon. For the election of office-bearers for the forthcoming year was as follows: President: L. Poynter; Vice-Presidents, M. Ide, A. Stebbing; Secretary, L. Hunt; Asst. Sec., M. Cox; Council delegates, G. Robertson (3WJ) and Noel Slinbeck (3ANZ); Committee: W. Woodward, M. Cox, L. Hunt; B. Stebbing, M. Ide. Official Observers: F. Nolan and G. Morris.

After business was disposed of, we were entertained by Noel SANS with a film featuring tx hunting and another on the Melbourne airport, which included some shots taken during

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

the Group's visit to D.C.A. at Essendon. These were followed by some films in much lighter vein kindly brought along by Michael Ide. We would like to thank those two gentlemen very much for providing us with such an interesting evening.

The visit to the Newport Power Station, despite poor weather, was a great success. About 15 members attended and we were shown everything from where the coal arrived at the power station through to where the outgoing power was controlled.

Recently several members in search of knowledge of Ham Radio visited the station of Bill Tregear STX. Bill, who is always ready to prove his knowledge when needed, was the boy most keenly interested by showing them not only his equipment but also log books dating back to the early days of radio and other relics from the time when a big spark was the height of amateur stardom. His days and of his own experience were something which they will not forget in a hurry. The boys went on their way fortified by a most enjoyable supper. We wish to thank you Bill for your generosity for looking after our members in such fine style.

On 2nd Sept. 26 members participated in a most interesting inspection of television station HSV7. Divided into two parties we moved gradually through the airfield process of putting in to programme on the air from studio or film to the final output from the control rooms. Quite a few amazed faces were apparent upon being shown the microwave transmitters used for relaying the programme from studio to transmitter up in the mountains.

The Group meets every month at the Institute rooms, 191 Queen St., Melbourne at 8 p.m. on the last Tuesday of each month.

PAPUA-NEW GUINEA

This month we have a short note from R. Clarke, WIA-L3001, who informs us that the A.O.C.P. class is going along steadily and a couple of the chaps intend to sit for the exam. In January, and hence with a bit of luck to make it, Robert Smith is looking round for a good receiver. At present he is using an Ekko but it is not exactly suitable for Ham work. Laurie Howell is using a Pye International and getting some good results although he has not been very active recently. Bob Clark has been overhauling his ART and is pleased with the results. He is busy now building a pre-amplifier to try and break down the noise level which he suffers at his QTH. All the association members of the Division have now been allocated s.w.t. numbers, so it is hoped that they will take a more active part and come to the meetings, thus making more news items available.

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FIFTY-SIX MEGACYCLES AND ABOVE

56 MEGACYCLES

Trans-Pacific schedules from U.S. to Australia will be resumed on 1st October, 1957, at times to be announced later. In addition to radiating signals been on Australia, K6RNQ, W6SUE, W6AJF, W6BAZ and W6UOV will all be listening on the fifty-six megacycle band. All have receivers for this band in addition to their own 50 Mc. allocation. This gives a real incentive to use the 56 Mc. band.

The above information came to hand from Norman Burton, of Revesby, N.S.W. It is requested that Amateurs, particularly in VK2 and VK4, operate on the 56 Mc. band and endeavour to make contact with the American stations—Ed.

All is quiet on the 56 Mc. front. No great burst of activity on the band though fresh calls are appearing each week. Main scene of activity is on the work bench where new rigs are under way. When the finished jobs are on the air the activity should be reminscent of the 50 Mc. band. The activity is at a high level on 50 Mc. Browsing around the various bands many conversations in all States relating to construction jobs under way can be heard, a healthy sign indicating that the d.c. man is interested as well as the v.h.f. chap.

T.V. has proved a bugbear to many of those whose tx's have been built for some time, entailing complete re-construction, the tri-tet front stage going in favour of a straight triode with plate shunting and link coupling between the following stages, and more bypassing than the average Ham ever used. Strange the ways of the t.v. serviceman. A quarter wave dipole end fed had been placed on the t.v. front, proving most effective when the critical length had been found. Came the serviceman for a minor job, saw the loose end, cut some off, patted the ends back and soldered on to the aerial terminals on the back panel. His reasoning was that the end of a piece of 300 ohm ribbon go? Some fellow said the 144 Mc. beam was the strangest t.v. aerial he had ever seen and what a peculiar direction it was to point it at. The moral, make sure that the XYL or that you know what you do to the t.v. set.

Auroral work here in VK has had limited, if any investigation. It has been tried on rare occasions when the opportunity arises there to no avail, possibly because of the limited compassions of the band. A further limitation is VK's location in the temperate zone, our southern latitudes not being as close to the effective southern auroral zone as the northern, more popular districts of the Americas. But that is not to say that we should not try. The W.L.A. has been asked to co-operate during the Geophysical Year in the work of auroral investigation. More information shall be given next month as to how we can help. We should realise that the Amateurs as a whole are judged by the way we respond to such requests by important, sometimes Government back bodies and investigators. It is the cheapest form of scientific work and additional numbers are not required for sure, but they certainly include ZBZB and ZON. A new station on 2 mx, ZBZB, has been heard getting himself all mixed up with his former callsign—ZBZB. The first 2 m stations here are Ron ZCZC and Aubrey ZAXT. Ted ZXX and Alf ZCZB have both been heard on 2 mx after an absence of some time—ZER.

NEW SOUTH WALES

Meeting.—The monthly meeting of the V.h.f. and T.v. Group was held at Gore Hill Technical College on Friday Sept. 6 at 7 p.m. The meeting was well attended and business concerning field days, contests, treasure hunts, etc., was treated with despatch and the meeting proceeded to the important event of the evening—an auction sale of Ham gear. As usual the auctioneer was Ted ZXX and as always did a mighty job. Quite a large and assorted collection of gear was brought along by members (including 2NP's usual copious supply of valves), most of which fell under the hammer of our most capable auctioneer. Arthur JAYA was the lucky fellow bid on behalf of the Group. Good show, Ted!

The meeting then being ended, tea and biscuits (a new departure for v.h.f. meetings) were served by 2NP and v.h.f. who have undertaken to provide this service to members.

Monthly Night Fox Hunt was held on 28th August. The stations participating were Top Ryde. As is also usual, the winner of the 4 month's hunt, ZAWZ, was the fox. Dave, who is as wily as a fox as he is a hound, was well and truly baited at West Turramurra. Phil H. won John Z2AN in 90 minutes (just made it John). Bob Z0AD and Phil ZBZB came in next and we understand that although Z0A really was in second (96 minutes), ZBZB was so close on his heels that the result was nearly a draw for these two places.

Jim ZBZB with ZAWZ and ZER aboard came to an ignominious end in a ditch and had to send for "Winchy" and others including ZCZC to get him out.

I.G.Y. Project.—Full scale rehearsals that were to have taken place during the first week in Sept. have been brought forward by two weeks and will not now take place until the week commencing Sept. 15. This change has been made necessary because Sydney's recent spell of wet weather played a certain amount of havoc with the astronomical installation at Belfield.

During the month it was requested that the Group submit a comprehensive technical report on the radio section of this project. This report was prepared on our behalf by John ZANF who you may be assured did a very fine job on it.

Lectures.—The lecture for the October meeting will be given by Mr. Alec Little, of the C.S.I.R.O. Mr. Little proposes to tell us something about radio, but unlike most lectures on this subject, he will concern himself with noise external to the rx. This should prove to be a most interesting and informative lecture and we hope will be well attended.

During the month of August five metre activity was limited to the usual round of additional numbers but they certainly include ZBZB and ZON. A new station on 2 mx, ZBZB, has been heard getting himself all mixed up with his former callsign—ZBZB. The first 2 m stations here are Ron ZCZC and Aubrey ZAXT. Ted ZXX and Alf ZCZB have both been heard on 2 mx after an absence of some time—ZER.

VICTORIA

Fox Hunt.—The August hunt was a successful night for all concerned. Ron JARY was fox and three carousal bands, viz. Z2AT, ZAOG with SMS, and Bob Hall with JADU turned up. The route traversed: Studley Park, Richmond, Hawthorn, Glen Iris and Ashburton—the final meeting being at the home of Cliff ZATH and Marianne Evans. The hunt was a good time and at the end of the evening David Z2AT was declared the winner with Tom ZAOG runner-up.

v.h.f. Meeting.—At the August meeting, Peter Z2AF gave a short description of the Butter oscillator. He had his 56 Mc. converter on display in which he had used this type of oscillator. Peter also had his 28 Mc. portable gear on display and he worked SMT at the Royal Melbourne Technical College. In the course of his talk of modelling Syd Z2BB amused the gang with a description of his new, completely shielded, pre-amp. The general business section of the meeting was mainly taken up with a discussion of field days.

On the Air Bands.—On 16th August good conditions on the Bands.—On 16th August good conditions existed on 144 Mc. Z2CG in Gippsland heard SMT in Melbourne, who was only using a halo antenna. George also worked 3AMH, of Ballarat, with good signals both

ways. There has been some activity on 288 Mc. lately. Both Z2FA and Z2CA operated portable from Science Exhibition during Education Week period. By the way, Z2CA is now working on 144 Mc., whilst Z2FA has a converter going. He hopes to have it going soon. A new call floating around 2 mx is Z2BZ, but I am looking for the owner, ex-ZEB. Congrats on the full ticket. Stan Glad you like 144 Mc. enough to stay on the band. Congrats also to Jim JABA; late in August, XYL Vera presented him with a fine daughter—she is doing well, including Jim.

George Z2AF had a quite accident recently. He injured his hand rather badly when he got a "kick" from the p.a. of his rig. Hope you will be fit again soon. Geoff.

David Z2AT has been running mobile on 56 Mc. and is looking for the owner, ex-ZEB. David, who now lives in North Balwyn, passes on the following for newcomers to 5 mx: One or more of the following stations will be on 288 Mc. each night: Z2AT, Z2AF, Z2BZ, Z2P and ZAH.

I am up recently from Lindsay White, who is at present stationed at Hopetoun. Lindsay is just waiting for his call to be issued and then he hopes to represent Hopetoun on the band. Another possibility for his call is Jack Z2D. As soon as it comes through there will be another 2 mx sign from down Hightway, Brian Z2FH has trouble in the form of t.v. Frustrating, isn't it Brian? After a couple of months of musing about I think I finally got rid of my t.v. I'll appear to be caused by some elusive parasite in the final. Ross Z2DN has been gradually building onto and improving his gear and he is now keenly awaiting the opportunity to work his first 2-millimetre station.

v.h.f. 100 Award Certificate No. 5 has been awarded to Alan ZANF. Congrats Alan. In making the award, Herb ZJO and Bob ZOJ deplored the design of some QSL cards. They said they had knock back a couple of designs because they were not in accordance with operation, or signature of the operator were missing. Another fault with some cards is that they don't definitely verify a contact; it could be verification of an s.w.l. report. Therefore, when designing or writing out your QSL cards make sure that all the necessary information is given. It's most discouraging for someone trying for an award to receive a worthless card—Z2AQ.

QUEENSLAND

With the proposed advent of t.v. in Queensland now certain, I suppose it won't be unduly long before the boys start thinking in terms of "one-eyed monsters". However, for the time being their minds seem to be directed towards long yagis, 16 element beams and 5 metres.

Quite a few of the newly licensed limited Amateurs already have 5 mx rigs on the go or on the air, while the 2 mx band looks like regaining its "all-too-quiet" silences of yesteryear.

However the 2 mx tx hunt on Friday, 6th Sept. was well attended and proved an enjoyable evening. The tx was hidden at Ekiton Quarry by Les 4LM and his crew. Ross 4ZAT found the tx in 16 minutes, which was quite a record. However, 4ZAT was rather unlucky, as at one stage, while the director of the hunt worked his way out, he took bearing which landed him 10 miles out to sea! He also had to curl his blithe spirit while he followed a crock trail for nearly four miles at steady 25 mph. However, he did manage to get there for supper which was provided by Mrs. 4LM, for which all the boys were very sincerely. Remember the next month and bring your friends along!—Z2AE.

SOUTH AUSTRALIA

Once again a lack of activity noted from on 56 and 144 Mc., most of the gang being busy on building and really experimenting.

The only signals heard this way being Keith 5MWA (who also provides the 2 mx relay of W.I.A. session in the morning), Col 5R0, Hughie 5RBC, and Bill Z2AX, and even they have been spasmodic.

Anyway the weather is surely more to the liking of the boys now, so we hope to hear more from now on of 2 mx activity. Somebody one is tuning and no one calling, that happens plenty of times on the lower frequencies, so who will set the pace?

This activity is not apparent on 288 Mc. for my 2 mx reports have been extreme dry on that band of late where it is very easy to get a contact almost any time.

Among those active on 1 mx are SKY, 5JK, 5JS, 5LN, 5LQ, 5XA with quite a few others (Continued on Page 15)

PERSISTENCE PAYS OFF ON 144 Mc.

On 9th July 1957, W6NLZ and K6HUK made history by establishing a 2,000 mile contact on 144 Mc. The contact was a real one and was held for over one hour. Both stations were running 1 kw. and had large yagi beams—

W6NLZ with a 24 ft. long yagi. The details

YL CORNER

BY PHYL MONCURE*

In a letter received from one of our **YXL** readers, Jan Nitschke (Mrs. SEN) we catch a glimpse of life at the **SEN** location. Jan writes:

"Well the stork has at last dropped his bundle, another male harmonica. Barry Erwin by name, and the OM couldn't have been more pleased (another aspirant for 'beam raising he thinks). Usually that has been my lot, but I have done these jobs and tests of what may be done in earlier than the poor when poor **YXL** is snug in bed and must get up 'in the cause of duty', practically life or death or some unbeatable reason. After much arguing and prevailing on his sympathies, with great difficulty, the OM raised the beam wins, and for a week afterwards you struggle to 'feed the brute', while in the grip of the 'flu, and all the sympathy you get from the OM, and don't you look after yourself, stop salivating about all night."

"Anyway I really do feel it's a great life being an **YXL** and I must admit there is usually a scramble to get hold of and read 'Amateur Radio' first. Even our 18-months-old son is interested in the radio and has a intense interest in Amateur Radio and knows which way to turn knobs and pull out plugs and of course has to have his say over the mike. But just how I'm going to stand it in a couple of years with this I don't know. I don't know. As it is now I'm dragged into the shack to wind coils till my eyes nearly turn inside out, but I'm assured that one day I will get my corner cupboard in place after having waited two years for my hand basin in the bathroom. I can believe anything."

"I quite honestly though I must admit that I have been well schooled in the art of Ham Radio and I usually did go in for a while with my eyes open. You see a week after I had first met my OM-to-be, he arrived at my home complete with gear, morse key, etc. At this time he was bedded in the 'best bedroom', but after a few weeks with this I didn't like it at all. It was a 'rubbish room'. It was no time at all and VKSEN was boldly nailed in large letters on the door. Fender lines were strung across the room, out windows and up the 'whole light house'. We used to wonder why the lights went dim when **SEN** was testing. I was made QSL manager and was quite honoured with the position, but if I had only known then what I was up for, perhaps I'd have been less interested in the 'whole light house'. I got up a mere 500 which he said I can do so capably but believe me I don't fail to detect a certain amount of 'she's got nothing to do a day' syndrome in the OM's speeches."

"I believe the OM throws out the chair when he shows visitors to the shack and they see the neatly labelled files and tidy shelves, but it's just that I'm too ashamed after he's been in there wrecking things as he's so dreadfully untidy. I'm not too bad myself, but I do try to please him but it has taken on a new 'sparkled' pattern, which I strongly suspect to be solder which flies in all directions when he is busy 'converting' something."

"We are going to Sydney shortly so the boys up there had better bring their tools to their benches in case my OM decides to 'dig up a Ham'."

"Good wishes to the column, never miss reading it, and I'd like to send 'ya to all the other readers—Jan Nitschke."

* 235 Union Road, Ascot Vale, Vic.

C.D.E.N. NEWS

The value to humanity of Radio Amateurs in an emergency is highlighted by the story of the French film "Rescue Little". The story is written around a drama at sea and the part played by Radio Amateurs in the rescue operations. Radio Amateurs in Australian Capital Cities are being given the opportunity of seeing this epic film, when it is shown to the public by the film's distributor and exhibitors.

Divisional Co-ordinators are now in possession of up-to-date information on C.D.E.N. activities and after Divisions have had a chance to peruse and criticize "Instructions to C.D.E.N. Operators" and the final draft of "Authorisation Card" copies will be taken to circulate both to members of C.D.E.N. through Divisional Co-ordinators.

Hereunder are Rules regarding Initial Action and Co-operation. Discussions relative to same will be included in next month's C.D.E.N. news.

Initial Action and Co-operation

1.1. The first action of any Amateur is to advise HQ. Control Station via any available channel that an emergency is developing and indicate when he has offered to enlist the services of C.D.E.N.

1.2. The Amateur or Amateurs shall then advise the Officer or Officers concerned that W.I.A. C.D.E.N. has been alerted and that he has a position to handle traffic with such places as directed by the Control Station or necessity.

1.3. Other stations in the affected area will report into the control station for instructions, which may include handling traffic, monitoring frequencies, or intercommunication with other services.

1.4. All messages handled from an emergency area must be authorised by the person

FIFTY-SIX MEGS. AND ABOVE

(Continued from Page 14)

which my spy most likely could copy if the beams were directed that way, since I have gone mobile, and the most common method that way is 513, who uses a 6/6 outfit. The mod. osc. is still the method of tx, no xtal outfit about yet on mobile, the trusty CV6 or 7123 tubes being the base.

There are some newcomers on 1 m. We congratulate Alf SZAL, Al SZCR, George SZDF, Brian SZBN, and it is known that there are others who have just received their call, but have not been around much. They will, it is hoped be along in time for next report.

555 bobbed up again recently with quite a nice signal from Lockleys. The W.I.A. session is put over regularly by one of the boys for the benefit of all and sundry who can't tune 40 m.

518 HK has gone very quiet about antenna lately, rumour has it that he has been experimenting with a jet-propelled bath chair so that the "old dodderer" can keep up with things generally. He is also building up a new low frequency antenna.

With warm weather approaching we expect more activity from the mobile gang—hope to work Joe SZO on the band again soon—5EP.

WESTERN AUSTRALIA

The V.H.F. Group meeting on 3rd August was held for the first time in our new rooms at D.C.A. Amenities Section. The business section of the meeting disposed of, we settled down to listen to two lectures, one by Alf SEKA, and the other by Rolo S6O. Alf's was entitled "Transistor measurement" with elaborate test gear, and the boys enjoyed it because Alf is a master of this subject. S6O talked on crystal grinding—theory and practice—the latter part coming from experience. Again this was well received.

The Fox Hunt on 24th August was again very successful. Dennis SAW was the fox. It was a close go as three cars pulled up at the site together. The final placings went to Ralph SZAD, Jack SZBN and Don ZVAV. There is a running record at each V.H.F. function up at the wrong end of a shotgun gun. An irate householder must have thought someone was trying to pinch his clothes line—evidently mistaken for a feedline and being followed back to the right place.

Jack SZBN has been on 56 Mc. since receiving his call sign and as he remarked, he is a bit mike happy. Rolo S6O and Wally 6WG still checking the 250-mile path to Albany on 144 Mc. every morning. Alf SZAD is running on when available. Rolo S6O reported that a signal from Tom S7TH was received in Perth on 56 Mc.—a distance of 90 odd miles—from a tripler. —6ZAV.

listed on the Authorisation Card, whose signature on the Authorisation Card and initials on messages should be obtained where possible.

1.5. The initials of authorised deputy will supersede the message.

1.6. Lacking the authorisation as above, the Amateur may originate or accept such messages which plainly indicate that they are of a genuine emergency nature and can be substantiated by fact.

1.7. All messages to be made on guard frequencies 3550 Kc., 7083 Kc., etc., but traffic is only to be handled on assigned net frequencies.

1.8. All stations in the area, adjacent areas and wherever necessary to emergency channel 16, are to refer to emergency channel 16 when making a call from the frequency and should move immediately when requested by station detailed to guard channel.

1.9. Co-operation with other services will be given willingly upon request and Control Station notified of action being taken.

1.10. The Control Station will at all times exercise over-riding control of network activities. All stations in the net will refer any queries to control for advice and decision.



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A & R

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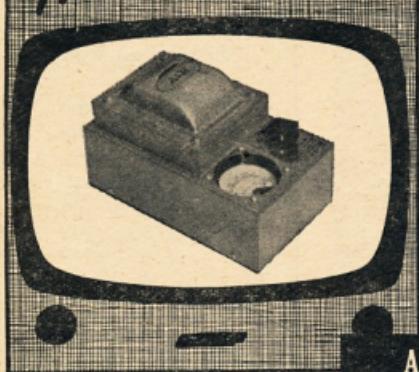
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Flicker or shrinkage of the Television picture often indicates a low line voltage, leading to complaints of unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low.

There are many other applications for the A & R Voltage Adjuster, such as, control of input voltage to Amplifiers, Transistors and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc. provided that load imposed is within capacity of the adjuster. The auto model is quite suitable for these applications.

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FEDERAL, QSL, and



DIVISIONAL NOTES

FEDERAL

WEST GERMAN AMATEUR ON 4 METRES

A limited number of West German Amateurs are to be allowed to operate in the band between 70.3 and 70.4 Mc. during the I.G.Y.

It is understood that D.A.R.C. have applied to the West German Government for permission to operate a special I.G.Y. station using the call **DLEUGY**, but no details are available.

SCATTER RESEARCH PROGRAMME DURING I.G.Y.

During the International Geophysical Year a research programme on Ionospheric Scattering will be conducted by Scientists on Radio Astronomical Observations. The equipment will be installed by the American National Bureau of Standards, and will operate in the 50 Mc. band. Transmissions will be beamed Northwards and Eastwards from places in South America. Radio Amateurs have been asked to report reception of these stations.

1959 I.T.U. CONFERENCE

The Administrative Council of the International Telecommunications Union has set the date for the opening of the radio conference at 1 July 1959, and for a maximum of five months. Geneva, last year, tentatively chosen as the conference site, has been confirmed by this year's meeting.

FEDERAL QSL BUREAU

In a letter covering the forwarding of QSLs the President of the Teknik For Allas Eterklubb of Stockholm, Sweden, states that the Club is the greatest DX club in the world and has 20,000 members, and in its technical magazine has a circulation of 70,000 copies.

The Denver Radio Club announces an award called Mile Hi Award. This certificate is available to all Amateurs who contact 25 stations located in the Denver metropolitan area. Ten of these contacts must be with members of the Denver Radio Club. Club QSLs for the contacts claimed must be sent to the Club at Box 356, Denver 1, Colo., U.S.A., where they will be checked against members' logs. Additionally each claimant from VK will be eligible to receive one year's subscription either "QST" or "CQ." Renewal subscriptions may be gained by completing the required contacts with an additional 25 different stations to those originally submitted. No information is given as to the retrospective contacts.

A card has come to hand from France for **VK5JF** whose address is given as Cocos Keeling Islands. Name of **VK5JF** is given as "Mice." Time of contact when he was on c.w. 18250 on 1st August 1957 was 11 Mc. Maybe "Mice" is the successor to **VK6AJ**.

Cards have come to hand from **UAIKAE** located at Mirny Base, Antarctica. The operator, George Minnow, is now back in the U.S.S.R.

VZFH was operated from March 20 to March 27 by several W4 operators. Location of the station was the screened-in front porch of the Bayview Hotel, Georgetown, Grand Cayman Island, in the B.W.I. The station was on 14 Mc. and 16 Mc. and 20 Mc. 2000 and 4100 contacts were made with 2502 different stations on five bands. One 48-hour period of operation yielded 2,405 contacts! Hailers' equipment was used throughout and the antenna system consisted of a triband cubical quad plus dipoles and a vertical. Any VK not yet having received his verification can obtain same by writing, Don Chesser, R.F.D. 1, Burlington, Ky., U.S.A.

Ray Jones, **VK3RJ**, Manager.

NEW SOUTH WALES

The A.Y.A. meeting of the N.S.W. Division was preceded by a Special General Meeting to consider the proposed changes to the Divisional Constitution, and directed by motion made at the Annual Meeting. About 60 members were present when the Chairman, Perce Healy, **2AQO**, opened the meeting at 8 p.m. Several letters from members unable to be present were read on the proposed changes. These were followed by a recorded speech by the Federal President.

The Chairman then outlined the history of the proposed changes quoting extracts from Institute records and discussions had with the Division's Hon. Solicitor.

Many of the members present spoke on the desirability of making any changes, others thought that while some of the proposed changes were quite in order, others were deemed unnecessary. Finally, after an hour and a half's discussion, a motion that "The motion be referred back to Council for further consideration by them and to report the findings at some future date," was moved and was carried by approximately 5 to 1 majority. During the discussion on the motion, the Chairman indicated that Council had, when the matter was first discussed by them, thought the proposed changes could be dealt with by a Special Committee.

The time taken to dispose of the Special Meeting did not allow time for a lecture at the normal monthly meeting as several items of business had to be cleared and the caretaker appeared at the door to indicate time had run out.

However, the following new members were admitted: J. F. Dalziel, **VK2ZD**; S. Davies, **VK3AD**; H. Y. Powell, **VK2AYP**; C. Fletcher, **VK2ASF**, and D. O'Dea, K. G. Scott Assoc.

The Secretary informed the meeting that the decision to make a new tower made to the O.T.C. had been accepted. This will be removed from the Pennant Hills Wireless Station and re-erected at 2W1 at Dural.

A motion objecting to Council's action in regard to the QSL Bureau was discussed at length, but after the reasons for the action taken had been given, the motion was defeated by a very large majority.

Coming Divisional events are the V.H.F. Spring Field Day on October 6 and the Hunter Branch Field Day at Blackalls on October 5 and 6. The South Western Zone Convention will be held on October 26 and 27 at Cootamundra. Full details of these meetings are given in other section of this issue. Members are invited to give these functions their support and join in the activities. Take along your family and friends.

The Field Day, which for the last few years has been held at Woy Woy, will be held this year at Gosford on Sunday, 17th November. The change of location for this function should prove a very popular move and will be held in the Gosford Surf Club House with a large parking area alongside the Olympic Swimming Pool, hundreds of yards away. It is closer to both Sydney and Newcastle by road than Woy Woy and only a few minutes further by train. Keep this date free and see next month's issue for further details.

As was indicated in the last issue, Vince **CAB**, **V2C**, has been appointed to carry on as Treasurer for a short period. Council's thanks go to Vince for his efforts over the past 18 months and hope he has a f.b. trip north. To fill the vacancy **3QG**, Ced Smith, who has just returned to VK2 after spending some time in the U.S.A., has been appointed of looking after the financial side of the Division. Those of you who know Ced are no doubt aware of his ability in this line of business.

The Division's C.D.E.N. officer, Roy **ZHO**, is busy preparing details of proposed scheme for the VK2 Division. This will be sent to members for their consideration in the near future. Roy is also due to attend the C.D.E.N. School at Macdonald, Vic., in October.

Remember to note the dates for the functions given and if anyone is not possible for you to attend, look for stations operating at these functions and join in the fun.

WIRELESS INSTITUTE OF AUS. HUNTER BRANCH, N.S.W. DIV.

SIXTH ANNUAL

FIELD DAY

BLACKALLS PARK

SATURDAY and SUNDAY,
5th and 6th OCTOBER, 1957

*

Registration: 12/6 OMs, 2/6 XYLs, Junior ops. free.

HUNTER BRANCH

Thirty members and visitors attended the September meeting of the Branch to hear Mr. R. Mondel from the School of Electronics and Communications lecture on "Impedance Matching," and also to view a film of the effects of a Hydrogen Bomb blast. A very enjoyable and educational night was had by all present.

Mac O'Brien, keen country assoc., had a film at the ticket but the film did not play up. However Mac's a great trier and he'll make it soon. He has built himself an all-band rx with plug-in coils and is converting a 522, Rodney 2CN is being heard more often as test equipment from his study. A few wet Sunday bring more visitors from 2AGD; keep it up George. Ernle 2FP is very elated as his beloved 10 m. band has opened to Europe in the evenings, and he worked ZC4 with plug-in coils and is converting a 522.

Rodney obtained a G band from his B22 rx. He kindly advised Ron **2ASJ** who has the same type of rx and now, thanks to Gordon's tip, Ron has a manual too. Ron **2ASJ** with lady friend attended the opera to see "Tales of Hoffman." Due to a family illness, and Sid Daniels had to cancel his trip to VK4 so he spent the holidays enjoying the opera at Ron's **2AA1**'s place of toll. Following in Harold **2AA1**'s track, asso. Jack Hamilton ("The Mayor") was at Ham's meeting to the North Coast Zone calling on Chris **2XO**, Taree **2AEY**, Noel **2AHH**, and the Grafton boys. According to 40 m. grape vine, all the YLs went bush when they heard that "Gentleman Jack" was coming. Jack's main purpose in coming was to advertise the Hunter Branch Field Day.

Lionel **2AWX**, the operator of the Branch station **2AWX**, has been on holidays in the big smoke and other places. Jim **ZAHT** has graced VK4 with his presence and was holding court in the multi-bunk of Gordon's. Bill **2TJ** has just about completed his all-hand t.v. proofed tx. Our Secretary Charlie **2ARV** managed to work some DX while at home for a week with mumps.

It is with much regret that we note the passing of Mr. Stuart, the father of Ron **2ASJ**. Ron's father was known to everyone who visited Ron or who had worked Ron on the air. Mr. Stuart always had a word of greeting for the local boys who contacted Ron in a QSO. The Hunter Branch sends its deepest sympathies to Ron and his family in their time of sorrow.

The Hunter Branch Field Days will be held on Saturday and Sunday, 5th and 6th October.

The program will be published in August "A.R." A large attendance is expected and a large number of prizes are to hand for the various contests. Some of the donors of prizes are: Lawrence & Hansen, Martin De Launays, Eddie, Bobbie, Chris **2PZ**, Radio Corporation, Various **2SP**, and others.

Don't forget that the Branch station **2AWX** can be heard at 2000 hrs. every Monday night on or about 7050 Kc. Listen for the latest Branch activities.

The next meeting of the Hunter Branch will be held at the University of Technology, Tighes Hill, at 8 p.m. on 11th October.

VICTORIA

The general meeting for September was held at the usual place on the second Wednesday instead of the usual first, and President Fred Tiges was back in the chair after his recent illness.

W.I.A.

SOUTH WEST. ZONE N.S.W.

FIFTH ANNUAL

CONVENTION

at COOLAMON

26th and 27th OCTOBER, '57

*

Book Early for Accommodation

As was previously announced the lecturer on this occasion was Major L. G. Moore, of the R.A. Signs Corp., and his subject, "S.S.B. Techniques in Service and Commercial equipment". For the average Ham the picture has become rather blurry over the last few years due to the many of controversial matters which have been bandied about. Here then was an excellent opportunity to get things straightened out by one who knows and we were most disappointed when the speaker put himself entirely at our disposal and we didn't let him stop until almost "lights out".

The lecture was presented in two parts: A theory section beginning with fundamentals and finishing with block diagrams of actual equipment and a film covering similar ground but with emphasis on operation.

In leading up to his subject the speaker pointed out the difficulties that exist in co-ordinating the use of the r.f. spectrum on a world wide basis. He pointed out now that the demand for frequency allocations is fast overtaking the supply. Anything that can alleviate this congestion is being sought with much vigour and s.s.b. is proving to be a very definite answer in this direction. Its chief advantages when compared with the d.s.b. form of transmission are:

- (1) Only half the bandwidth is required.
- (2) Selective fading is almost eliminated.
- (3) Because of (2), distortion is greatly reduced.
- (4) Transmitter power is used more economically.
- (5) Multi-channel operation is available.
- (6) Receiver bandwidth can be reduced by half.
- (7) Signal-to-noise ratio is vastly improved.

Naturally, there are a few disadvantages to be contended with, such as high maintenance costs, high initial cost and loss in t.f. efficiency with this form of transmission, but these are far outweighed by the advantages as stated above.

In the U.S.A. such importance is placed on the worth of s.s.b. operation that efforts are being made to convert all frequencies below 25 Mc. to this form of transmission over the next ten years.

Hamwise, s.s.b. is a very attractive proposition as it enables maximum use to be made of the limited power available and it also produces a better signal to noise ratio at the rx end.

Rather elaborate gear is required in the Service and Commercial field of operation using this form of transmission but, as the speaker pointed out, the same high degree of perfection is not required on the Ham bands and something far less pretentious and well within the reach of most Hams is available. This is

some consolation. Lack of space and ability force me to leave the subject here, but I am sure that the very businesslike and authoritative manner in which the lecturer presented his subject gave all of his listeners much food for thought.

As was to be expected, very little general business resulted from the meeting. However you will be interested to note that the Philiphines are now a permissible contact.

This is probably as good a time as any to remind you that the State Convention will be held at Colac on 9th and 10th November, when the Southern Zone will be home. The following information should, therefore, be communicated to our Admin. Secretary (Mrs. May) at the rooms, 191 Queen St., Melbourne, as soon as possible so that the organisers can make their arrangements. The names of those who wish to attend the Dinner, day meetings, attend the picture show on the Saturday night, (XYLs and harmonics), and those who wish to be catered for at midday dinner on the Saturday. Also those who intend to stay for afternoon tea at the local botanical gardens.

It is understood that £1 deposit is required with hotel bookings, but other details will have to be obtained from the rooms or the next Sunday morning broadcast as full details are not yet known.

Tentative arrangements for the Convention are as detailed below:

Friday evening: Social evening in the evening followed by the meeting. Whilst the OMs are coming to grips at the meeting the XYLs and harmonics who have arranged to do so will visit the local flicks.

Saturday: Transmitter hunt and visits to local places of interest (including local Ham shacks no doubt). Midday meal (chicken included) at one of the local hotels. Afternoon tea at the local botanical gardens.

From past experiences this will be a large Convention and, unless the Colac Hams can give the fullest co-operation, their organisation of the event could be badly hampered. Give them every consideration by letting your intentions be known as soon as possible, otherwise you have only yourself to blame if you "miss the bus".

One final word, a meeting needs an agenda and an agenda takes time to prepare. Therefore, please lodge all agenda items with Mrs. May by 21st October.

The above is only preliminary advice as further publicity will be given about the Convention, the programme and over the air, so keep an eye and ear out.

Upcoming lectures: October—Roth Jones (3BG) will present an illustrated travelogue on the Middle East and Europe with slides. November—Bro. V. McKenna will present the R.F. System of the Cyclotron. At the conclusion of the lecture there will be a conducted tour of the equipment at the University.

Members admitted to the Institute at the Sept. '57 meeting: Full Members—B. S. Baulch (3ZCQ), A. Lock (3AUL), R. Rutledge (3ZDX); Associates—H. B. W. Barling, C. T. Biggs, K. A. Chamberlain, K. A. Robertson.

NORTH EASTERN ZONE

Since the announcement in "Amateur Radio" of the altered time of the N.E. Zone hook-up several members have, over the past four weeks, made an appearance at 6 o'clock on Saturday night for the hook-up. This is heartening because it indicates that interest is not completely lacking in the zone but it would be appreciated if more members would come on to pass on news and items of interest and also pass on their news to those who come to this zone to Allen 3ACO, an ex-VKI who recently took up duty in Victoria at Radio Australia, also to Bill 3AHO at Kyabram, who obtained a ticket a few months ago. Bill has been on the air each night since getting his gear together.

Howard 3YV has retired from business and has taken up making cine commercial films. Bill 3JK has been selling a large amount of radio equipment he is working on the sideboard. Peter 3APP is putting the finishing touches to a very well constructed t.v. set. Des 3CO is also interested in t.v. along with Syd 3EY. Ted 3AOH has been assisted by George 3GJ and others. Ray 3FT is putting much interest into photography; still has not completed his room to house the radio gear. No news is available on these members: 3AMZ, 3QC, Frank 3KJ and 3PS. No news is available on the candidates in the zone. Bruce 3AGG still pursuing DX on 20 and 15 m. Ken 3KJ working each night at movies in Benalla assisted by Keith. Hugh heard occasionally on 40 mc. Andy 3FD has been on the air for hook-up along with Vern 3AXW. Les 3ALE may have to enter hospital for a short period soon. 73 chaps, and please

pass on any comments via the Wednesday night hook-up and let's see if we can liven up this zone as in the past.

EASTERN ZONE

A successful fox hunt was held at Sale in July and the Sunday afternoon selected turned out to be a good day. Only three hounds turned up, which was a little disappointing, but it is hoped that a few more can attend our next meeting. Cliff 3AIT and Peter 3ZDP played the field and we had a most real show-down. They went through bogs, then through the streets of Sale and finished at a beautiful location on the other side of the canal. George 3ZCG was first to catch the fox who was bugged near Lake Wendouree where he almost got bogged, but short wave listeners Ron and Allan, who were following, were cunning enough not to get stuck in the mud. Ron and David 3DY had the day's three runs with 11 points, while George 3ZCG had 10 points with Ian and Terri third. To wind up the day, Peter and Reg's 3YLA put on a lovely afternoon tea. Reg 3ZCR was the control station. On the night of the hunt, Reg and George went portable on 2 mx, halfway between Sale and Bairnsdale with good results, so come on

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COLAC

on

9th and 10th NOVEMBER, '57

*

Forward Agenda Items to the
Hon. Sec., Vic. Div., 191 Queen
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*

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South Western Zone members
through Mr. C. A. Cullinan,
VK3AXU.

All other zones and metropolitan
members through the office, 191
Queen Street, Melbourne.

you Bairnsdale boys. What about some contacts on two mx? Allan should be able to supply the requirements.

Sam Hobson of Yarram is now a holder of an Amateur license. Good in Fred. Also, Sam 3AAW is now on five bands using an 813 with 100 watts and will be changing QTH shortly to Moe. He will then put up a few beams and towers. During the month, G3CG planned to change his location to Moe, on the hill. Cliff put up a good score in the R.D. Contest. He had over 200 contacts. We understand that Bert 3BB, Ron 3PR, Graham 3QZ, and David 3DY also had a few contacts. We all wish Graham a very enjoyable trip to the French Pacific Isles.

WESTERN ZONE

Our Annual Zone Convention will be held in Warracknabeal on Sunday, 29th September, will meet at one of the local hotels for the midday meal, after which will follow the meeting. The afternoon will be taken up with a tx hunt on 80 mx and a scramble on 40 mx. Any folk with other high frequency gear are asked to bring it along as everyone will be interested in it.

Trev 3ATR has been contacting Chas. 3AB on Island Davis regularly on 21 Mc. Hc. 3NN, of Yanac, has had more than his share of sickness in his family recently, and we offer him our sympathies. In the field of radio, G3WV, of Rainbow, one of the regulars in our hook-ups, is now getting the parts together preparatory to building a converter for v.h.f.

QUEENSLAND

We were very pleased and fortunate to have present at our last general meeting our Federal President, Mr. Bill Mitchell, 3UM. He very kindly brought the house up-to-date on quite a few matters, which (as far as VK4 was concerned) have been "in-the-air". After the usual preliminaries were over the meeting quickly moved to discussions on available dispositions of land and method of dimension. Without a doubt, Cliff's ballot was the fairest, but as the finer points of difference arose concerning the eligibility of Limited Amateurs to ballot for low frequency gear, it was suggested that the matter be referred to Committee for a full investigation.

There were some doubts concerning the decision to provide the technical library with some disposals gear recently purchased by tender. It was thought that this would deprive the country Amateur of extra gear, the technical library was in great need of an amenny for the city Amateurs. However, as there are no rx's nor auxiliary tx's in the technical library to provide a complete working station, it was pointed out that should 4W4QZ be unable to transfer his gear to VK4, where possibly the new operator did not possess a good communications rx or perhaps was not able to make his own station rx available, then difficulties would most certainly arise. Also in the event of emergencies it would be necessary to have two reliable working stations available at short notice.

Stan 4SA announced at the meeting that his A.O.C.P. Class will commence on 1st Oct. 1957 to cover the radio course in three months and spend a further three months in revision. This will enable candidates to sit for quarterly examinations and not make things too difficult for students joining the class during the course. Stan also hopes that his course, which I understand has been extremely well organised, under way by next May. This venture is something quite new in VK4 and Stan for his own efforts is to be sincerely thanked and given all the co-operation he deserves.

An approach has been made to secure other meeting rooms in order to conserve our finances. There are a number of rooms available at the George St. University and although it is not the policy of the University to grant rooms to organisations not related to it, a spokesman said that our request would quite possibly be favourably received.

Unusual sunspot activity and auroral disturbances have severely restricted communications in certain areas and signals from the sun were way down on all bands. As there are only a small number of local operators on 5 mx, information concerning the 5 mx band, particularly as requested by Geo-Physicist Prof. Robertson, must be obtained direct. Future meetings of the Emergency Committee will tabulate the results obtained. So be prepared! You may not be informed when the next run is to take place.

We had quite a gathering at the last general meeting and the boys competing in information really peppered our Federal President, Mr. Bill Mitchell, 3UM, with questions,

Bill first gave a general resume of Federal activities and pointed out to us, as indeed we have proved for ourselves, that unity is strength. The reason, he said, for the delay in publishing the results of the Convention was caused by several factors. First, over sixty type-written pages of foolscap had to be translated from short hand notes. Secondly the manuscript then had to be edited and put into presentable form for publication. All this was done in the spare time of several members and although there was a delay, considerable saving of publishing expenses were effected. Bill also stated that an extremely large number of items were discussed and tabulated at the Convention and the delegates were given very little time to enjoy the sights after the day-long meetings finished around midnight!

It was pointed out by a local member that the last Annual Convention was held at a time when the finances (unless the books had been planned before hand) of Divisions generally would be at a low ebb. This was due to the fact that the Convention was held near the beginning of the financial year and subscriptions from members were only just beginning to come in. Consequently, large expenses at the time were not convenient. Bill said in reply that this point, which was quite a problem, would in future be taken into consideration.

Also items of C.D.E.M. were given considerable priority at the Convention and Bill informed the meeting that a plan had been made to have sets of circuits drawn up and standardised. This equipment could then be rapidly produced, should the need arise, and thus save the expense of equipment available for the Amateur C.D.E.M. This scheme was approached from many practical angles and at one stage a completely transistorised transceiver was considered. However, as is usual with most things, finances have to be kept in mind and it was decided that a practical scheme eliminated the huge expense of firstly having, say five hundred units manufactured, and secondly, maintaining and modernising the units as time went by. As things stand, all alterations have been made to the circuits to keep them up to date.

Bill also informed us that the next I.T.U. Conference will be held at Geneva in 1960. It will commence on 1st July and will continue for approximately two weeks. It is the possibility that the Amateur fraternity may lose some space in the spectrum, it was suggested that unofficial representation (by the W.I.A.) at the meetings concerning Amateur activity, should be made. The cost of representing a delegate would be £2,500. After serious thought you will agree that this amount (approx. £1 per capital) would indeed be a small price to pay to maintain our rights. It is envisaged that delegation to this Convention would most likely be required for the duration but for approx. two months.

There were also many other items of interest which Bill mentioned and which will be published in due course. However, we on Council particularly were very grateful to Bill for the information which he supplied. A very thanks was passed to Bill at the meeting by the VK4 President, Mr. Frank Bond, 4ZM, who expressed the hope that it would not be quite as long before Bill visited us again.

Our interest was the first trial run of the Queensland Amateur C.D.E.M. which took place on Sunday, 25th August. The show started at 8.30 a.m. when an "atom-bomb" fell near the Storey Bridge. Immediately v.h.f. links were called in and both h.f. v.h.f. mobiles began investigating damage in the city. HQ was established in Cilder, Hill, Hill, Hill. Communication was established with all local sectors and with VK4W1, who by this time had the country network in full swing. Some of the better local city nearly "died" from exposure to radiation and were trying to re-capture curious animals which broke loose during the ensuing melee.

All in all, the network proved very informative and Vince 4VJ as chairman of the Emergency Committee could not be more pleased. I'm sure, we all do at the success of this, our first trial run. There are to be other emergency runs, which as we become more experienced, will themselves become more complex. Other services may possibly be called into the emergency net to provide exercises in dovetailing resources and extending the hand of co-operation.

Council wishes to thank all those members who have given their services in this direction. Future meetings of the Emergency Committee will tabulate the results obtained. So be prepared! You may not be informed when the next run is to take place.

TOWNSVILLE

I expect I am like the others in writing these notes, always wishing that some of the boys would help out and pass along some

news, either about what they are hearing, working, or their latest pet theory on how to achieve more gain from their antenna, etc. The last meeting of the T.A.R.C. was well attended and very productive. Bill from the R.A.F. was in an appearance. He hails from Ballarat but his name slips me for the moment. More about this next month. John 4DD was well to the fore again in breaking new ground with his antenna designs, exchanging gear. No doubt he's heard all about our Secretary Ted's gear accumulated over the years ex disposals.

It is hoped that two associate members will face the barrier for a Z call sign next October and here especially is wishing them the best of luck. I lost the Z call barrier on 44 MC and it has been broken and 4ZAY and 4ZAK have been heard at this QTH. So far no signal from Charters Towers, but Colin 4EJ is going to try and pump a signal from Castle Hill, 900 ft above sea level at Venetia. I have heard Venetia fall down in Mingle, 30 miles before dropping down the range of mountains. Ted 4EJ and Rex 5LR are anxiously awaiting the arrival of disposals transceivers and blame the new law on our railroads. I can take it hoyes.

Visitors to my shack the past fortnight have included Frank 5AE, ex-4AE; Reg Frost, ex-YJ1RP, the New Hebrides, who regarded the dogs there and about the old mine areas. VLA 3AA, Fred 4WV, who has been heard Venetia fall down in Mingle, 30 miles before dropping down the range of mountains. Ted 4EJ and Rex 5LR are anxiously awaiting the arrival of disposals transceivers and blame the new law on our railroads. I can take it hoyes.

Bob 4TK had a flying holiday down this way. Passed the shack and did not call in on his way to the Towers where he found it too cold for his liking. He hurriedly left after calling. Vern 4WV, who has been working to Home Hill before returning to Innisfail, Ken 4DX blew in a couple of times and was unlucky to find me at work each time. Better luck next time. Bob MPMBBC, ex-MFZAA, together with VSWL, ex-MUEB, are looking forward to renew talk with all the VKs they have worked at the old QTH.

SOUTH AUSTRALIA

The "Members' Display" Night attracted a very large gathering of the clan in VK5, including visitors from G land, one Joe Brown, G3AOE, who is spending some few weeks in the State. Others were D. G. Ross, S. Morris, (SQL), Downey (SHD), Kelly, S. Morris, Tidderman, Dugdale, Young (SEU), Colin Luke (5ZXY), Thomas, Parham, Joyce, and finally Harry 3MY. We always welcome interesting participants, whether as we learned later on, some of those visitors had been on the dotted line and sought membership.

Each member who had gear for display was required to give a short talk on it, why he made it, what it did, and to use Secretary Brian 5CA's words, "tell us why it worked". This was a great varying degree according to the vocal skill of the speaker and it was noted that the Junior member 5XV, whilst he may have put Pop in a couple of times, handled the matter like a veteran. So look out fellows, you can cancel next day's work.

John 5JT showed us an R.C. Bridge he has nearly finished, which with separate amplifier and power supply, will be a most useful set-up. A very small and compact diode wavemeter also spending made ample attention, and a set-up with a range of 100 Mc. to 90 Mc. with a separate 150w power supply was much admired. Finally, he had an i.f. oscillator for 455 Kc. same being metered for checking and fitted with an attenuation control, being powered by the power supply.

The Judges, Messrs. Nestrom, Archerfield, and Heinrich awarded John the prize for the Test Gear Section.

Malcolm Goodridge had a very nicely made Ge-Physicist's waveguide, consisting of a range of 230 to 300 Mc., using a germanium diode and a 250 microammeter. Claims accuracy to within point one per cent.

R. G. Edmonds gave us a look at his transistored wavemeter, consisting of which a lot would have had to take home. A 20-200 microammeter as a base, he can adjust to take readings up to 2,000v--a very useful piece of gear.

For. Forde won a prize with his V.t. Voltmeter, a first class job too, which he made up from circuit obtained from "R. & H.". The accuracy of measurement has been checked against a commercial unit and found to be right on the nose.

In the absence of Les 5AX, Frank also displayed and described a pre-amp sent in by Les. One of his famous designs that has

proved so successful in raising signals and lowering noise.

John S. had a simplified receiver using 6RA6, 6BA6, 6SK7, 6SE7, 6MS, and with separate controls on ant., osc. and r.f. Certainly a departure from gang tuning, but with a vernier control on the osc. claims many advantages over the more complicated designs. The chassis is a cadmium plated chassis of 15g. steel provided a highly firm base which was completed with plug-in coils.

Remember all the arguments about the SMD modulator for the Type 37. Well, Dr. answered them all by building a 2nd stage into the mod. along and connecting same up (to a dummy load) and demonstrated that it does modulate "upwards", in fact it was asked to tune for "downwards" which some claimed did not for them. John has the control of it. Once again simplicity speaks off, for a 6SH7, one 6V6 and a 10K.c.t. speaker transformer is about all that is in the little gadget.

Gramma 5XV took a prize with his v.h.f. converter which converts 144 m. to 20 m. The mod. along and connecting same up (to a dummy load) and demonstrated that it does modulate "upwards", in fact it was asked to tune for "downwards" which some claimed did not for them. John has the control of it. Once again simplicity speaks off, for a 6SH7, one 6V6 and a 10K.c.t. speaker transformer is about all that is in the little gadget.

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Tom 5TD had a wavemeter made up from

BC375 coils, 6S17, osc., 6K8 mixer, 6J7 audio, a

radio first-class job too, and at question time, most wanted to know when it could be

done.

Laurie 5XN completed the display by showing us the progress on his new tx. t.v.i. proof to the last detail. A very attractive blue ham-mertone finish to panels and chassis work gave a professional look, while the antenna and power followed all the things the T.v.i. Committee have hammered into us for some time. All coupling between stages is inductive, power in osc. and multiplier stages kept low (none higher than 1 to 2 watts), bypassing and shielding of power leads carefully planned.

A 6AG7 Clapp osc. cathode followed to EF50 multiplier stages, an 807 drive on final frequency with an all-band tank circuit drives a pair of 6145 in parallel through a pi-coupler to 5000.

The many questions asked re this display indicated the interest shown therein and to the fact that a lot are keen to do the same job. Laurie, of course, received the award for that section.

By and large, a most successful programme which the boys would like repeated.

The formal business concluded the gathering, the most important section of this latter part being the annual election of the following members: Full Members—R. A. C. Washington (5ZDF), H. S. Young (5EZY), D. F. Dawson (5KHD), and C. Luke (5ZKY), with Associates—K. M. Hill, R. C. Bills, M. R. Williams, R. J. Skinner, and R. Burns.

The member voted the one "most likely not to be broken into" had his record shattered recently by receiving an unwanted visitor. Guess who? Don 5MD. Fortunately, a noisy entry or attempt attracted the canine watch which barked until his precious 510 was still intact. What no barks on the shack window? Shame on you Doc.

It is proposed to start up another A.O.C.P. class to follow the present one, and that keep the ball rolling, and as the present lot will finish late October an early indication is needed from those intending to enrol to enable the organising to proceed. Let Brian 5CA know your wishes or Norm Colman, in any event, if you are interested it looks like same cost as at present, the whole course or a division of subjects is available.

Bob 5DM paid President John and Secretary Brian a visit last month when Institute members generally were徵rewed over.

The R.D. Committee has been and gone again (hope you have all put logs in by now) and from it a few more lessons learned. One of them being the "life" the bands have when the contest is on, and not kept up through the year. All bands were well populated with some excellent signals heard, and some very good operating procedures noted, particularly from some of the older chaps. It would not be fair to name anyone, but it was refreshing to notice the operation was mainly through contacts and the few who may not have attained that standard must have learned a lot in the 24 hours.

Congrats to Federal Council for introducing the opening ceremony.

WESTERN AUSTRALIA

At the Divisional meeting on 20th August we had a very interesting lecture by Mr. S. Cooper, of A.W.A., on the subject of "Commercial Application of T.V."

Another R.D. Contest is over and though scoring did not appear to be as high as last year, the bands were pretty crowded. It is surprising the number of local calls on the air at this time, who are seldom or never heard during the rest of the year. No doubt the Contest is responsible.

6M1 is active again after about a three-year absence. He borrowed a tx. and after a couple of local QSOs, using a whip aerial on the chimney, the radio bug really hit again and he was soon happily digging in the junk box and rigging up a 66 ft. centre fed in the garden. If 6M1 goes off the air soon for a second time, he will be changing QTH and hopes later to be on with a higher powered rig on 20 m. Meanwhile he has worked VU2RM on 40 c.w. with his QRP rig. In a recent radio programme John was asked how he liked the bands. Thinking of his recent 5M1, he said "Old Dads" he said "They're not sure how many funnels has it got?" I believe for several posts he received sprigs and parcels of boronial! Now he is looking forward to a visit to some country Ham where he hopes to sample emu steaks and rawtart soups.

A recent broadcast is noticeable for the way in which South Africans have been worked from VK8 on 80 m. in the very early mornings. 6BE, 6CLL, 6EJ and 6LG were heard in a round table QSO with reports running up to 89 plus both ways on the air. 82S was worked from VK8 on 40 m. 6K2, 6CD, 6CV, 5OM, 5PM, 5YC, 6GN, 6QK, and 6VO.

6EJ swung a wee beam in the direction of Canada and has been working lots of VE and KL7s on 20 m. at good strength. 6RU is now on s.s.b. and I understand will discuss the design of this type of equipment at the September meeting.

6MK was unfortunately on the sick list during R.D. Bad luck Tom, hope you will be again

before again, before this appears in print! 6AG has re-built his pre-amp. with very pleasing results.

The Sunday morning 5W1 broadcasts on 40 m. are giving better coverage than last year, conditions on that band being better at 0630 than they were. Wally is to be congratulated on the excellent work done and the service he is giving the Division continues to be specially appreciated by country members.

TASMANIA

NORTH WESTERN ZONE

How are the mumps? At the time of writing there appears to be a fair number of reports saying that the crop is extensive and prolific. Even Jim JJO has been laid up with them. Never mind Jim, we've got them in the house.

Another Athol Lockett is apparently getting some practical knowledge in at Devonport by visiting Ted 7EJ. How's that rx Athol? Hope you don't go the same way as Max, our Secretary, and can't decide what type to build. Please call in Ted 7EJ when you can too, perhaps we should have R.D. Contests more often, and we might get a few more of the old shellbacks out. Leon 7JP, at Queenstown, lashed out recently to the extent of a new antenna and transformer. Should be able to modulate that kilowatt without any trouble now Leon.

Heard Ellis 7WA on 40 m. recently, so I guess you have got that home-built Collins 75A working on the other bands as well as 15 m. 5M1. How about a write up for "A.R."? A new QSL card has been sent out, showing the percentage of modulation. Let's hear you on 80 m. some time Chas. You should have that 813 stoked up to by now. That's probably right stoked up—they take 50 watts to heat them. Our local members have had on 40 m. during September. Tiny 7JD, portable at Scamander on the east coast. That 4 watts was getting along this far, Tiny, sounds a fine job.

It seems to be general exodus of VK7s lately to VK8. While talking to 3KU on Sunday (ex-7BC), 3ALE broke in to say Allan ex-7CJ was in the shack. Pleased to hear of you Allan. Let's hear you from your own rig sometime. Not much news of t.v. this month, but a notice in an advertisement for the sale of a travelling wave aerial. Apparently home made ones are best. Jim.

PAPUA—NEW GUINEA

The new Secretary is Norm Casey, 5N7T, and President is now Frank 97N. The QSL Bureau remains the same. Norm is with the Post & Telegraph Dept. and Frank is with the P.M.G.

The Division is steadily growing and a new comer is Doug 8SB (ex-5SB). Welcome to VK6

Doug and may your stay with us be a happy one.

It was good to hear so many of this Division take part in the R.D. Contest, although conditions were not the best, many went the full distance and put up a respectable score. Hope to hear you all again in the VK7-ZL Contests.

"Giant Noises" is making some queer noises as he is packing to go south on leave this month. 9AT was heard taking a cook's tour with portable the other week. Claude 9T2 was heard on 7-27 working 7 MC with a 17W. an 8V-100. Very nice. 9AMZ is busily trying to extract 1 kw. out of a pair of 6146s with input of 100W. Should hear Horrie on the air shortly. 8SF is back from the States and will have more time to work. You can't have all the DX all the time Reg. A special welcome to 9WG, it's nice to have you back on the air with us. Charlie. Be seeing you around. 9DB doesn't get around much these days since he took up golf. Believe he is bogged down at the 19th hole. Is that true Doug?

Carl 9YT is very active, but not on 7 Mc. on Sunday morning; how about it Carl? We would like some DX at that time of day. John 9KT and Les 9KJ are on leave and are expected to be back soon. The other boys are very active getting in plenty of DX. Russ 2XK has been declared champion of the brass pounders club. Wrists are very easily broken Russ; better come up on phone for a while.

Now that we are in the news again chaps, let's hear you on Sunday mornings so I can make this the best column in "A.R."—R. Clark.

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WANTED: Schematic circuit R1155A receiver, modifications and Australian substitute valves for R1155A, and lining up details. B. J. Booth, 229 Hanson Road, Athol Park, South Aus.

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| 360 μ F. 25V. | 1/6 ea. |
| 8x8 μ F. 325V. | 2/- ea. |

FLOCK CONDENSERS

| | |
|---|----------|
| 25 μ F. 200V. | 55/- ea. |
| 25 μ F. 1500V. | 35/- ea. |
| 1 μ F. 1500V. | 23/- ea. |
| 2 μ F. 4 μ F. 5 μ F. 1500V. | 35/- ea. |

Condensers 3-gang variable

37/6 ea.

Midgit 3-gang variable

37/6 ea.

Speaker Line T-formers

3/6 ea.

Speaker Line T-formers

assorted sizes

5/- dz.

Wire in these speaker windings

suitable for Crystal Set Coil.

Crystal

6d. ea.

Semi Fixed Detectors

2/- ea.

Semi Fixed Detector Refl.

2/- ea.

WIRE WOUND POTS.

2,500 ohm

3/- ea.

15,000 ohm

3/- ea.

TV AERIALS

Loft Aerial

£8/8/-

Super Tele Loop Indoor

Aerial

£4/17/6

Complete range of Antennae and

Panel Master Aerials in stock.

Stainless Chimney Mount

Kits

£2/11/6

200 ohm Feeder Cable

TV or VHF Lightning

Arrestors

10/- ea.

TV Line Filters

3/- ea.

Write for Free Illustrations.

RADIO

VALVES

1H6

5/-

12AU6

5/-

1K1

5/-

1K5

5/-

1L4

5/-

1L5

5/-

2B7

5/-

EL32

5/-

3SQ5

5/-

EX21

5/-

6AB3

5/-

KD1

5/-

829

5/-

5/-

KNOBS

Recessed Dial Knobs—

Ass't. Colours

3/- dz.

Telex Type Knobs

Flush Knobs with pointer

1/- dz.

Felt Washers

6d. dz.

RUBBER GROMMETS

3/8" inch

2/3 dz.

5/16" inch

2/1 dz.

1/8" inch

2/- dz.

1/2" inch

3/5 dz.

Special 1/2" x 1/4" hole

2/- dz.

Magic Eye Escutcheons

6d. ea.

DIALS COMPLETE

slightly marked.

USL 52 BC and DW

33/- ea.

USL 48 BC and DW

42/- ea.

MSL 48 BC and AWA

39/5 ea.

USL 21 BC and DW

38/5 ea.

Cable Lugs—solderless

1/2" dia.

Lugs—solder type

6d. dz.

Speakers—Transformers

5,000, 7,000 and 10,000

7/6 ea.

Speaker Line T-formers

7/6 ea.

This receiver makes amateur history...



DESIGNED WITH
ONE PURPOSE...
FOR AMATEUR
BANDS ONLY!

The

EDDYSTONE MODEL

Amateur Band Communications Receiver

'888'

FULL BAND SPREAD ON THE SIX MAJOR AMATEUR BANDS

By including only the six commonly-used Amateur bands the EDDYSTONE "888" offers big advantages. The expanded tuning scale gives a remarkable bandspread, enabling a frequency to be read to very fine limits. Also the L/C ratio for each tuned circuit can be chosen for maximum performance.

BANDSPREAD. The essentials of good bandspread are firstly a long scale and secondly a good drive mechanism. The "888" offers a scale 12" long and a geared drive mechanism having a reduction ratio of 40:1. With the vernier scale the mean average readings are:

| Range | Freq. Limits (Kc/s.) | Kc/s. per division |
|-------|----------------------|--------------------|
| 1. | 28,000 — 30,000 | 2.0 |
| 2. | 21,000 — 21,500 | 0.7 |
| 3. | 14,000 — 14,350 | 0.5 |
| 4. | 7,000 — 7,300 | 0.33 |
| 5. | 3,500 — 4,000 | 0.7 |
| 6. | 1,800 — 2,000 | 0.25 |

FREQUENCY STABILITY. Excellent overall frequency stability is given by the oscillator circuit design. Negative temperature co-efficient condensers counteract long-term drift.

BUILT-IN CRYSTAL CALIBRATOR. The crystal calibrator provides marker points every 100 Kc/s. Positive corrections due to any slight circuit variation are easily made by the use of this calibrator and trimmer condenser.

AUDIO FILTER. Incorporated in the "888" is an audio filter, peaking at 1,000 cycles and having a bandwidth of 100 cycles for c.w. reception.

MONITORING. With Stand-by Switch "off", the receiver is de-sensitised but not fully muted, enabling c.w. and telephony monitoring of local transmission. Stand-by sensitivity is adjustable.

ELECTRICAL PERFORMANCE. Sensitivity throughout is better than 3 microvolts for a 20 db. signal-to-noise ratio (50 milliwatts output, 30% modulation); absolute sensitivity on c.w. is better than 0.5 microvolts.

Selectivity is variable from 30 db. to 60 db. down, 5 Kc/s. off resonance. With audio filter in circuit, a signal 250 cycles off resonance is attenuated 32 db.

Output power exceeds 2.5 watts into a 2.5 ohm load. Image ratio better than 35 db. at 30 Mc/s. and higher on other bands.

AERIAL INPUT. Input impedance, approximately 75 ohms balanced or unbalanced. An aerial trimmer permits optimum results.

OUTPUT CIRCUITS. Terminals at the rear take a speaker with impedance of 2.5 ohms; a panel jack is provided for high resistance headphones.

OTHER FEATURES. A rear socket takes the plug of Eddystone Cat. No. 668 "S" Meter; another permits use of vibrator power pack.

EDDYSTONE "888". Receivers are obtainable from all Eddystone Distributors. All radio receivers are subject to severe import restrictions, and supply is dependent upon import licence availability.

A FULLY DESCRIPTIVE BOOKLET AVAILABLE UPON REQUEST.

Amateur Price: £261/2/- (including Sales Tax £41/-3)

SOLE AUSTRALIAN FACTORY REPRESENTATIVES:

R. H. CUNNINGHAM PTY. LTD.

8 BROMHAM PLACE, RICHMOND
VIC. 3127. JB 1614. N.S.W. 2160. WY 0316

